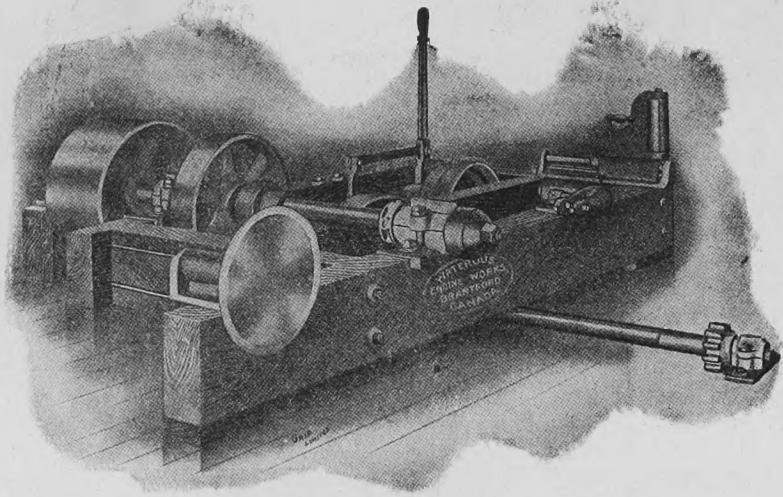


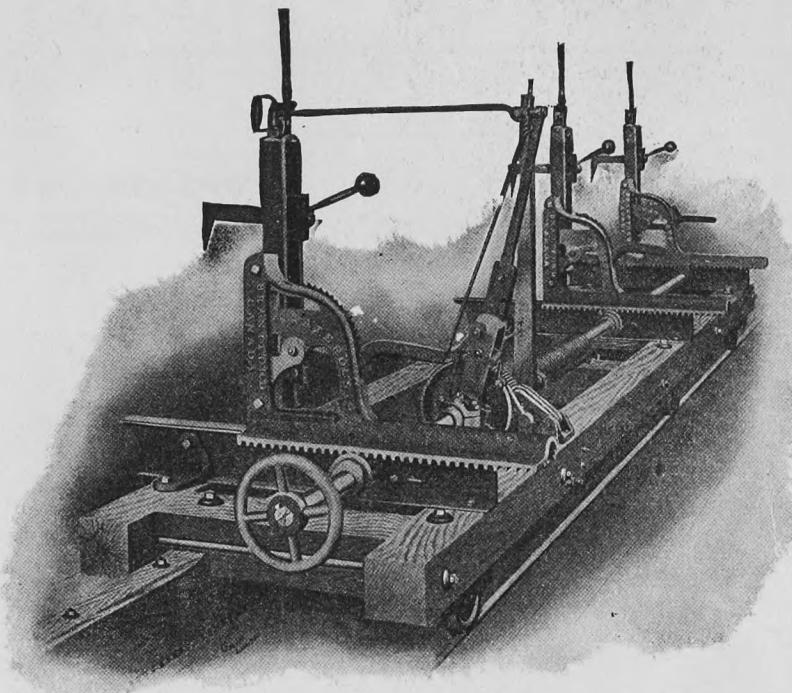


Saw Mill Machinery

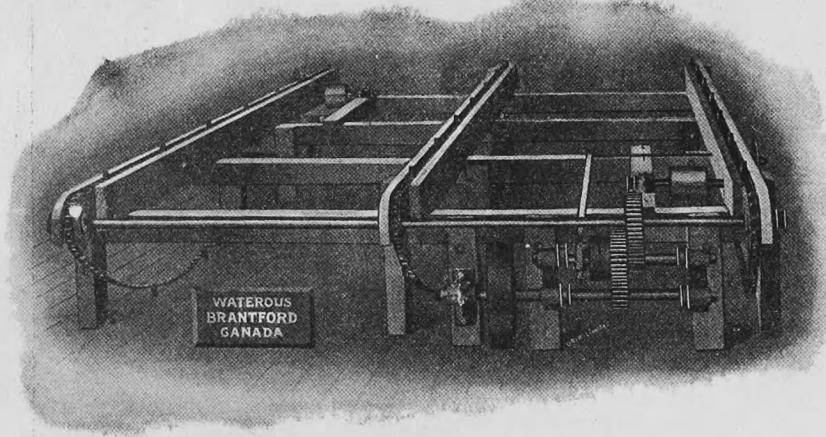
Our Specialty



THE WATEROUS No. A SAW FRAME, Friction Feed Works, Forged Steel Mandrel. Two Step Cone Feed, Turn Down Timber Gauge, Improved Saw Guide and Wheel Splitter.



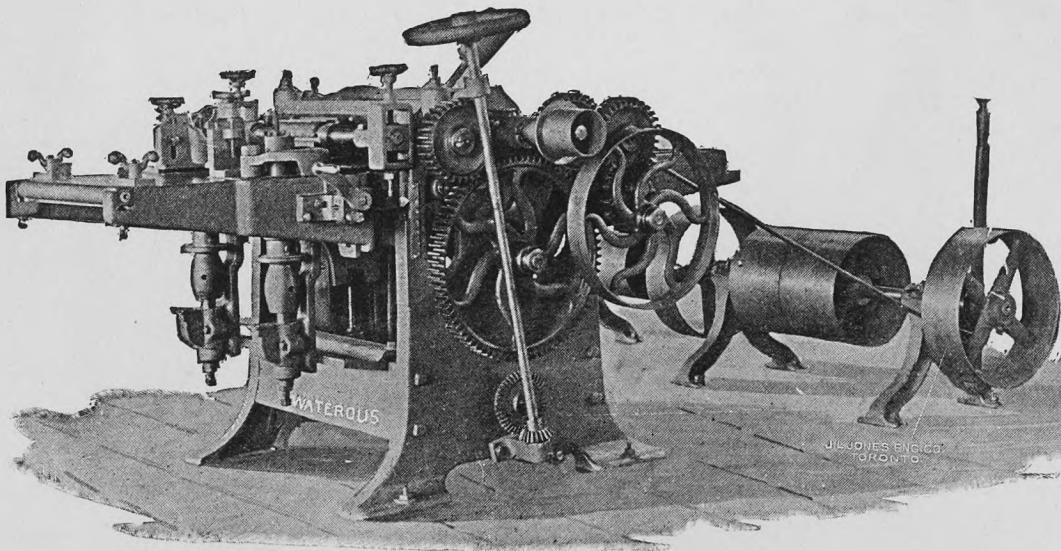
THE WATEROUS No. A1 LOG CARRIAGE, with Three Steel Girder Log Seats, Ratchet Set Works, Peel Dogs, Spring Receder, Rack Feed, Steel V and Flat Track.



WATEROUS TWO SAW TRIMMER, with Gear and Clutch Drive.



THE WATEROUS
ECONOMIST PLANER,
MATCHER AND MOULDER,
with Countershaft
Planes 24 in. wide, $\frac{1}{8}$ in. to 6 in.
thick; Matches 12 in. wide.



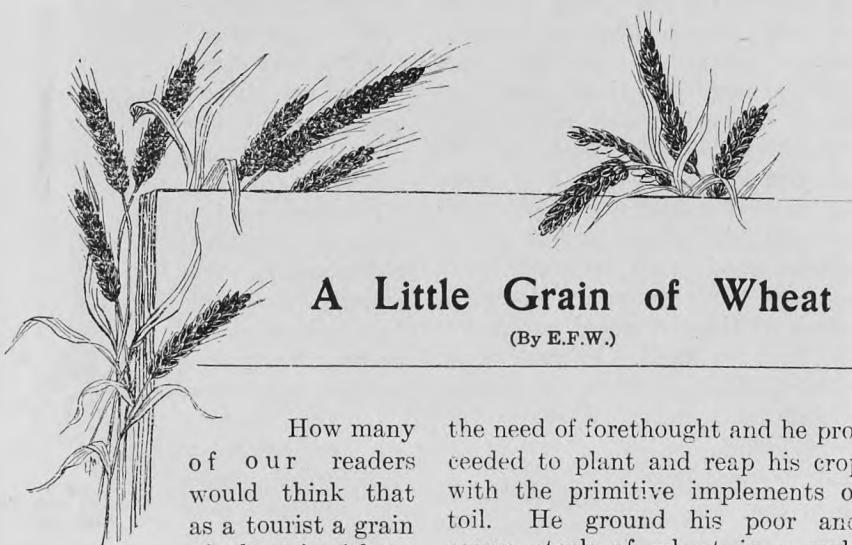
WATEROUS
CHAMPION DOUBLE
EDGER.

Three Saws—one stationary, two movable, Feed Rolls fluted with Front Table and three Rolls for Rear Table.

The Waterous Engine Works Co., Ltd.

WINNIPEG

MAN.



How many of our readers would think that as a tourist a grain of wheat is without a peer? Into every corner of the earth it pursues its ramifications pursuant to a popular demand, and it matters not whether it be the hunger bread of the starving Indian, or the white, flaky loaf of the Anglo Saxon, the wheat kernel forms the backbone of man's existence.

Wheat is flour, flour is bread, and bread is food—chief of all foods. Man's constant mainstay and support from time immemorial, the primary object in his struggle for existence. Food for the stomach takes precedence in the long list of man's demands upon the world, and bread has been the cry of the needy since history's beginning.

The history of wheat is the history of man's continued struggle for plenty. When first he emerged from his savage condition and when regardless of everything save the pangs of hunger, the first miller plucked the berry from the stalk, and using his teeth for millstones ground the grist for a customer that could not be turned away, his stomach.

Dire experience next taught man

the need of forethought and he proceeded to plant and reap his crop with the primitive implements of toil. He ground his poor and coarse stock of wheat in a rude mortar with a rugged pestle, putting by his stock of flour against a time of need which was sure to come. It was a crude operation at the best, but it paved the way for larger fields and better implements, and slowly but surely the raising and marketing of wheat came to be regarded in a commercial sense, for there have always been those since the history of mankind who were willing to pay that others may work.

The early wheatfields have become the battlefields of history, and many a landed farmer of the early days, were he alive to tell the story at the present time, could recount his experiences of husbanding his wheat through the long hot months of summer, only to have it trampled down in early autumn by the multitudinous footsteps of invading armies, he himself being glad to escape from his hiding with his life.

Then in this history of the wheat came brighter chapters with the dawn of a better civilization. Just laws and the longing for peace gave an impetus to agricultural industry that allowed mankind to develop his grain raising ideas to the fullest extent. Rich fields industriously tilled yielded abundantly, they became the workground of a happy people who labored to good effect. Even the milling industry began to grow and kept pace with the development of King Wheat, and the

miller typified by him of the Dee, became a man of influence and weight in his community, serene and prosperous.

The raising of wheat followed in the foot-steps of civilization and the explorer and the adventurer had no sooner blazed his trail through the forest, than the clearings were seen to sprout with the budding grain. Moving still onward, and never resting even as man's ambitions never sleep, the story of the wheat went forward. Yesterday a wilderness, to-day the abode of the pioneer, to-morrow a waving field of grain. From the

carefully husbanded lands of the British Isles it spread to her colonies, thence northward over the boundaries of the United States into the Canadian

Northwest. Spreading over lands recently supposed to be worthless marches, this king of breadstuffs, bringing civilization and law and order and justice with him. A thousand, fifteen hundred, yes two thousand miles to the north and west, and still there are fine wheatfields yielding phenomenal crops of superb quality. This is the latest achievement in the era of King Wheat, and men are beginning to wonder how many more thousands of acres are available for the culture of this plant before the word finis is written.

This tale of the wheat is ever with God's help. Each chapter marking an upward step in human progress, advance in knowledge, science, civilization, finally triumphing in a brotherhood of men wherein the East may be hungry, but the West will not let her starve. Its raising furnishes labor for hundreds of thousands, and its marketing and distribution provides the livelihood for thousands more. In the wheatfield, on the railway, in

the grain exchange, on the whaleback, King Wheat is the centre of attraction. Interdependent the nations shall feed each other and wheat will continue its beautiful mission of peace and good-will, and there will be no more hunger in all the world.

Botanically, wheat belongs to the grain family and is in fact, a modified form of grass. Its pedigree shows it to have some rather disreputable near relatives; certain weeds of doubtful reputation and some worthless plants, such as wild rye and wild barley. Indeed quack grass is only five places removed from this noble cereal. On the other hand wheat is closely related to a number of valuable forage crops, such as its English cousin, rye-grass.

There are four main divisions in the family of wheat: common wheat, dwarf and hedgehog wheat, English and Egyptian wheat, to which the durum varieties belong. Each of these divisions or sub-races, is again divided into a number of varieties which have been produced, probably by crossing the sub-acres. There is only one form of wheat known in a wild condition and is called one-grain wheat.

The family of wheat is not only very noble but is a very ancient one indeed. It is difficult to estimate with any degree of accuracy the length of time it has been used as a food for man.

Archaeologists contend that it was utilized in prehistoric days. The stone age probably knew it. It has been found in the ruins of the ancient lake dwellers of Switzerland, and discovered in the remains of Egyptian civilization.

The learned Chinese, who seemed to have a valid patent on almost everything in modern use, modestly state that wheat was grown in



Showing the nature of the upward and downward shoot of the wheat kernel.



The wheat kernel breaking. The first appearance of the shoot.



Outline of wheat grain showing baby plant. B — Bud with leaves enclosing each other. D — Shield shaped structure. F — Food for the baby.



A field of No. 1 Hard, near Hartney, Man., that contributes no small quantity of breadstuffs to the world's market.

China some 2,700 years before the Christian era. Undoubtedly wheat has undergone many changes in form, properties and characteristics during the time it has been cultivated by man, but the fact that it claims a record of more than 4,660 years of faithful service to mankind is the best evidence of its sterling character and value as a food. It is only during recent years that the claims of certain base pretenders to the honor and place occupied for ages by the wheat family have been put forward, and these claims are advanced by alleged health food manufacturers for purposes of personal gain, and are not endorsed by reputable scientists. It is quite safe to class them with the innumerable past attempts of faddists and quacks to overcome long-established usage, and to predict that as long as the human race inhabit the earth, wheat will hold first place in the list of valuable foods.

Wheats from different sources vary in many respects: white, red and amber in color; wheats with large and wheats with small kernels, and wheat weighing from 55 to 65 pounds for a measured bushel. When converted into flour and made into bread even greater differences appear. Certain wheats make larger and whiter loaves than others, and there are differences of color and taste that are noticeable. When the causes of all these variations are examined into, it is found that while all wheats have the same general chemical composition, they vary to some extent in the amounts of the different ingredients which they contain. Even in a single variety, some of the kernels are larger than others and more mature, some may be shrunk-en, wrinkled, bleached, frosted, or perhaps germinated or "bin-burned." It may be afflicted with fungus diseases or show the ravages of insects. In fact, during its growth, wheat is subject to many ailments and climatic conditions which have an unfavorable effect upon the bread made from it.



Fig. 4
Wheat grain cut lengthwise. A—Bud. B—Shield shaped structure. C—First root. D—Food for the baby.

To a considerable extent, science has come to the assistance of the wheat grower and has shown how some of the difficulties in the way of perfect wheat may be overcome, and how the spread of fungus diseases and insect pests can be checked. For example, smut is a fungus disease. If, before sowing, the wheat is treated with certain chemicals, wheat medicine so to speak, the smut spores are destroyed and the spread of the disease is prevented. Again the black rust of wheat is a parasitic disease in which the leaves become covered with brownish black spots which spread from all infested centres. Under favorable climatic conditions, this epidemic may spread and involve the entire plant and even cause a loss of the crop. Fungicides are useless in treating this disease. Rotation of crops and burning over infested stubble are recommended although no sure and complete remedy is known at present.

The family of wheat is not only subject to disease and sickness, but it has an army of enemies ready at all times to seize upon an opportunity to attack and if possible overcome it. Grasshoppers, church bugs, army worms, and frit and Hessian flies are its most destructive ravagers. Here again science has interposed to good effect between wheat and its insect enemies. The deadly grasshopper is kept within bounds and outbreaks of this kind, are far less numerous and ruinous than in former years. Large areas of wheat have been saved by means of a machine known as the "hopperdozer." This rakes over the ground, collects the grasshoppers, introduces them to kerosene oil, which destroys them. When the eggs of the grasshopper have been laid, the land is plowed and the egg case invested, consequently the infant insect is not able to make its way into the world. The plowing of land infested with grasshoppers has proved to be the most effectual way of fighting this enemy.

Scientists have experimented with the introduction of fungus diseases

among grasshoppers. Insects, like the animals of higher order, are subject to disease. Some of these sicknesses are parasitic in form, and if the germ of the disease can be introduced and spread about in the fields, the healthy grasshoppers soon become diseased and die. The ravages of the church-bug have, under favorable circumstances, been held in check by this method of treatment. The spores or seeds of a fungus disease which attacks the church-bug can be grown upon other materials, such as beef broth or cornmeal, and a stock of these diseased germs can be kept on hand. In case of an attack of the insects, the ground being moist and conditions favorable, these germs can be introduced into the soil, and are capable of spreading and causing disease among the healthy, active church bugs. This method of spreading disease among insects has been effectual at times, but, as in the case of all contagious diseases, the spread is dependent upon favorable conditions.

Ravages of other insects, such as frit-fly are combated by burning the stubble; this destroys the eggs of the insect. In the prevention of fungus diseases and insect attacks, the same principles are employed as in the prevention and treatment of human diseases. The cause of the disease is first ascertained, and its prevention or treatment is dependent upon some characteristic weakness of the parasitic body.

It will be observed that the wheat family, as behoves so ancient and conservative a house, repels the attacks of sickness by active and positive old school medicines and that the principles of Christian Science have not been applied to any extent in the elimination of wheat diseases. It is a fact, however, that during an outbreak of grasshoppers in Minnesota, in 1877, the Governor of the State appointed April 26th as a day of fasting and prayer, and urged the people to

"humbly invoke for the efforts we make in our defence, the guidance of that hand which alone is adequate to stay the pestilence that walketh in darkness and the destruction that wasteth at noonday."

The Governor's proclamation caused much comment and some adverse criticism. Clergymen read it from their pulpits and in solemn tones exhorted the people to assemble together for prayer on the day appointed. The 26th of April arrived, shops and other places of business were closed, the church bells announced the hour of service and, deeply impressed by the unusual character of the occasion, to which the extraordinary quiet of the day contributed, the people, Protestant and Catholic alike, walked soberly to church and there prayed fervently to the Almighty for help and succour against the threatened devastation of their wheat crop, which, at that time, was of vital importance to the welfare of the struggling farmers, who had suffered severely from grasshoppers the previous year.

A strange thing followed, strange but true, as thousands of living witnesses can prove. April 27, the day following the day of prayer, the sun shone over the entire State bright and clear and with extraordinary heat. The warmth was like midsummer. It penetrated the moist earth and there found the larvae of millions upon millions of grasshoppers. Stimulated and quickened by the heat, the infant enemies of wheat came to the earth and crawled about the surface in countless myriads, enough to destroy not only the crop of Minnesota, but that of the entire Northwest. The visitation of the year previous was nothing compared with the vast army of crawling locusts which now came forth from the earth. For a few days the unseasonable weather continued, then suddenly it grew colder and one night there



Fig. 5
Plantlet showing roots bursting through their collars.

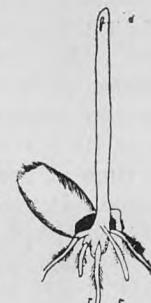
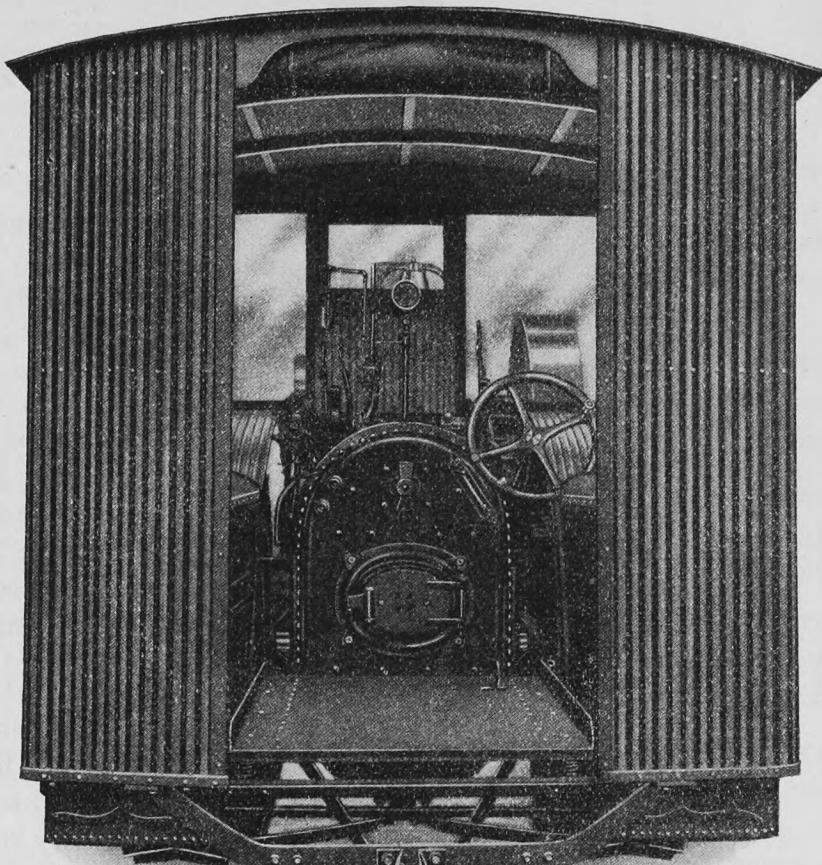


Fig. 6
Seedling wheat plant. R—First root. L—File-like leaf. D—Slit from which first flat leaf emerges.



Fig. 7
Plantlet with first flat leaf.

CONVENIENCES



For Cold Weather

The Port Huron Engine has many great advantages over other Threshing Engines for use in cold weather.

It can be equipped with a LOCOMOTIVE CAB. All the necessary levers and appliances for complete control of the engine are contained within the cab, making it unnecessary for the engineer to leave his shelter; and protection from storms is given to that part of the machine that most needs it.

When the engine is not in use it is protected, which means a saving of a great deal of wear and trouble for the operator.

It is the best kind of a convenience for the operator, besides adding greatly to the life and the running powers of the engine.

Drive Wheel

The drive wheel on the Port Huron Engine is our own patent, and has several qualities that make it THE BEST TRACTION ENGINE DRIVE WHEEL EVER BUILT.

First, it is **self-cleaning**.

The peculiar construction of the lugs, as shown in the cut, forces the dirt to leave the wheel, instead of sticking to it and "balling up" the drivers. Hundreds of users of the Port Huron can testify to the fact that this driver will go through mud and snow where other drivers will not.

Second, it is **non-jarring**.

The end of one lug leaves the ground just as the beginning of the next lug reaches it, so that on smooth roads there is always a continuous contact with the ground, making the wheel run as evenly as a smooth wheel.

Third, it is **non-slipping**.

Because of the peculiar construction of the lug, and because of the fact that the wheel does not "ball up," these Port Huron drivers do not slip either sideways or backward.

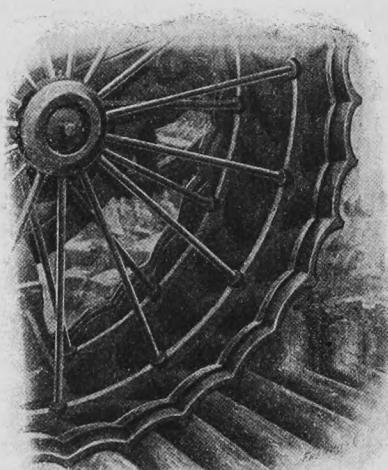
Port Huron Engines have been equipped with these driver wheels for several years past and therein adds to the number of men who have used it and who have told us that in their opinion there is no wheel made that is like it. In a letter written to one of the Thresher Trade Papers, Geo. W. Jerome, of Bridgeport, Mich., writes as follows:

"It also has a patent drive wheel which is the best wheel made. It never fills up with mud."

There are many other conveniences on the Port Huron Engine which makes it the easiest engine of them all to operate.

Besides this it is the strongest in boiler plate, in castings, in gearing, and in power.

Isn't this the kind of a Traction Engine that you ought to buy? For full particulars write to



Canadian Port Huron Co., Ltd.

WINNIPEG - Man.

CHAPIN COMPANY LTD., CALGARY, Alberta

Highway Construction

(By A. W. CAMPBELL, Ontario, Commissioner of Highways.)

GOOD roads are of more importance to the development of any country than is commonly attributed to them. A vague impression prevails that railways have superseded them, and that, so far as industrial, commercial and social progress is concerned, the condition of the common road is of little consequence. A more indefensible position could not be taken. Railways mean, above all, further development, and that development demands the improvement of country roads as feeders to the railway, and for communication with the adjacent country. Every nation that has achieved supremacy has been a builder of roads. Good roads are not merely an index of, but a means towards, national greatness.

Since the days when Rome built the Appian way, and those other great highways over which the commerce of her colonies passed, the art of roadmaking has been materially changed. These old roads were—and many of them still remain—masses of rock and masonry several feet in thickness. The necessity of this great depth of material has been done away with by the very simple discovery—yet one which is still but tardily accepted—that the natural soil, if kept dry by drainage, will support any load. As contrasted with ancient methods, the keynote of modern roadmaking is drainage, both surface and deep drainage.

A good country road has two well-defined features. These are:

(1) The foundation of natural soil over which the road passes, and which must be kept strong enough by drainage to support not only the weight of vehicles, but the road covering as well.

(2) The surface covering of broken stone or gravel, which resists wear, and distributes the concentrated wheel load over a greater area of subsoil.

If one of these is of more importance than the other, it is the former—the natural or subsoil—and it is the one the proper treatment of which is most frequently neglected. The right way to make a good gravel or broken stone road is to first make of the natural soil on which the gravel or stone is to be laid the best earth road that the soil is capable of producing. This is a matter of drainage and grading, and, if possible, rolling. The grading and drainage are largely the same thing, and have to be considered together. That is, the grading should be such as to give good surface drainage.

The first step that naturally presents itself in opening an entirely new road is to throw up in the centre of the road allowance a smooth and level waggon track. This work is most cheaply and effectively done with a grading machine. In throwing up this grade the excavation of earth at the sides forms the open drains.

The completed earth grade should for the average country road, have:

(1) A circular rise or camber of about two inches to the foot from the bottom of the side drains to the

centre of the road. This "crown" will carry water from the roadway to the side drains.

(2) A slope following the axle of the road such that the open drains at the side will have a constant fall to a free outlet. That is, the side drains should carry water away—not hold it in pockets and depressions. Drains which hold water instead of carrying it away are as useless in draining roads as they would be in draining farm land.

Almost any soil, when kept dry, is strong enough to support the traffic of loaded vehicles. Good drainage is the only means of keeping the soil of a road dry, and consequently strong. If the open drains are not sufficient then deep tile drainage can be adopted.

The effect of deep drainage is that, whereas the raised grade and the open drains beside it may keep the natural soil dry for a foot or so in depth, the tile will greatly increase this thickness of dry soil, which will give proportionate strength of foundation.

The round shape of the roadway is particularly important. It sheds water quickly to the side drains. Whereas, if flat or hollow in the centre, the rain falling on the road does not run off, but is held on the surface to soften it and turn it into mud.

The soils found in the sub-grades may be described in three general classes:

(1) Clay, (2) sand or gravel, (3) sandy loam.

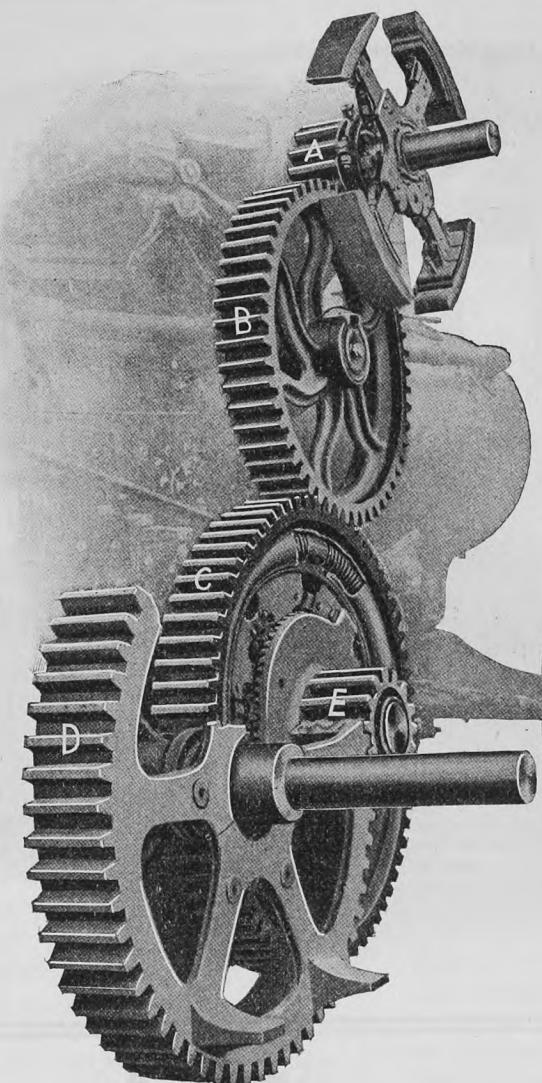
(1) Clay, as found in the sub-grade, is variable in quality. It may be a pure blue clay, or it may have sand mixed with it in different proportions. With blue clay, the ground water must be removed as far as possible if stable results are to be secured. In addition to the open surface drains, one or two deep tile drains should be laid along the roadside underneath the open drains and leading to free outlets. It is customary to place one tile drain on an uphill side, and one on each side in a cut or on a level grade.

If the clay contains a considerable proportion of coarse sand, it drains more freely than does pure blue clay, and one tile drain along the roadway will do all that two can do, if placed at sufficient depth. If, on the other hand, the sand is fine-grained, it may be in greater need of deep drainage than if it were pure clay, becoming when wet almost a fluid in consistency.

(2) Sand or gravel subsoils may demand little or no tile drainage to produce a reasonably strong foundation. Tile drains may be omitted at the time of construction, but can be put at points where the condition of the road under traffic indicates that the "water line" should be lowered.

(3) A sandy loam is a soil which is often difficult to treat. As a rule, in addition to good surface drainage, a tile drain at one side will be of benefit, particularly in drying out the road quickly in the spring, when it is most subject to injury under traffic.

NORTHWEST ENGINE GEARING



The Gearing of a 51-horse Double Cylinder Cross Compound Northwest Engine.

All gearing of Northwest Engines is made of semi-steel. Semi-steel is an alloy of steel and grey iron. It has 50 per cent. higher breaking resistance than common cast iron, and 34 per cent. higher than the best grey iron.

A bar of common cast iron one inch thick, one inch wide and twenty-four inches long, when supported at both ends shows a breaking strain of about 1200 pounds; good tough grey iron stands 1350 lbs. average; semi-steel has an average breaking strength of 1800 lbs., sometimes as high as 2000 lbs.

Added to this high breaking strength the semi-steel wears better than either steel or cast iron. Pure steel has a higher breaking resistance than either cast iron or semi-steel, but it cuts out or wears out more quickly than either, while semi-steel wears best of all.

All Northwest Engine Gearing is made of Semi-Steel.

NORTHWEST THRESHER CO.

STILLWATER, MINN.

Branch at Brandon, Manitoba.

The perfect drainage of the earth subsoil in this way by means of a crowned roadway, open drains and deep tile drains, will do all that can be done to make a good earth road, and thus to provide a firm, dry subsoil on which to lay the gravel or broken stone. If the soil is newly thrown up, however, a roller should be used to compact it, before spreading the road metal.

On clay soil a standard thickness of consolidated road metal is six inches. On sandy loam, the thickness should ordinarily be greater, particularly at any points where the soil is noticeably weak. On a sand or gravel sub-grade, the thickness of road metal (broken stone) may be reduced to four inches. On low ground between hills, or on a flat road, a greater thickness of road metal is required than on a slope or on the top of a knoll.

Having made a good earth road, and over this having spread gravel or broken stone, the next point is to see that the metal is compacted into a closely-knit layer. Loose gravel or stone on a road is an abomination. A roller should be used to consolidate the metal in order that it may perform its office of making a smooth, hard surface for traffic, which will distribute over the subsoil the concentrated wheel loads and which will form a water-proof coating that will shed water quickly to the open drains at the side of the road. If a roller cannot be procured, the wheel tracks made in the loose metal should be raked full from time to time until they are thoroughly consolidated by traffic, and flush with the rest of the road.

The materials commonly used for the surface of country roads are gravel and broken stone. Broken (or crushed) stone is, as a rule, much the better of the two. Roughly estimated, for average qualities of each, six inches of stone will make as durable a roadbed as will a foot of gravel. Gravel is a natural broken stone, but is rounded and water-worn, and contains a considerable proportion of sand, clay and earthy material. Crushed stone on the other hand, is made up of stones of a more suitable size, that are angular, and so bind together with a firm mechanical clasp; nor is there an objectionable amount of earthy material.

Whether gravel or stone should be used in any instance will depend on local circumstances. In some districts there is no gravel; in others there is no stone suitable for crushing; while in others there is little or none of either. This is a matter to be determined by the relative cost under the conditions of travel to be served. There are, however, some municipalities using inferior gravel at a cost of haulage almost equal to the crushed stone by rail.

Gravel for roads should be clean. Dirty gravel binds quickly after being put on the road, but dissolves readily in the wet weather of spring and fall, becomes rutted, and is not durable. The best quality for road has a good proportion of stones the size of walnuts, with enough fine pebbles to fill the voids. Certain qualities of gravel should be screened to remove earthy material; and others should be put through a stone crusher. Screening can be econom-

Announcement

We beg to advise you that Deere & Co., of Moline, Illinois, have purchased and will on January first next take over this Company's business at Winnipeg, Regina and Calgary, and continue same with the present lines under the name of "Deere & Co."

The clerical staff and travellers of this company will continue with the new Company, and Mr. H. W. Hutchinson will be its Managing Director.

All amounts owing us will remain our property and be collected by us, and until December 31st, we will continue doing business just the same as formerly.

The deal is mutually satisfactory, and negotiations originated with the purchasers four years ago, and the change has been anticipated by ourselves for some time.

Travellers will call upon you in the near future prepared to write contracts and orders for 1908 for the new Company.

Winnipeg, October First, 1907.

THE FAIRCHILD COMPANY, LIMITED.

ically done by means of a rotary screen, operated by steam, either separately or attached to a crusher.

Broken stone is now invariably produced by means of crushing machines operated by steam, these turning out from 50 to 100 cubic yards a day. The stone is obtained from quarries or is collected in the fields, care being taken in the latter case to discard such boulders as are badly weathered. Limestone is largely used in Western Ontario; and in Eastern Ontario, limestone, gneiss and granite.

Stone crushers are essential in municipalities having no gravel, but a plentiful local supply of stone. Formerly stone was broken by hand, but the process is too expensive and slow. By means of the stone crusher, broken stone roads have become practicable throughout the Province, as large quarries, with extensive plants, are now crushing stone and shipping it by rail for this purpose.

One of the most commonly-used roadmaking machines is the grader. Graders reduce largely the cost of earth work; but unfortunately their

misuse in repairing old gravel and stone roads has done very much harm. These old roads are commonly wide and flat, with square earth shoulders at the sides. With a view to crowning the road, the earth shoulders have been cut off, and instead of being turned outward, the material composing them, earth and sod, has been drawn to the centre of the road. This soft material lying on top of the old, impervious stone or gravel roadbed, in fall and spring becomes a river of mud. Miles of road have been almost ruined in this way.

Road rollers are steadily coming into more common use. A large number of towns and cities use heavy rollers operated by steam for their macadam roads. These weigh from ten to fifteen tons. Rollers drawn by horses and weighing from five to eight tons are also used. A roller should first be used on the earth grade of a new road to compact the loose earth, so that the gravel or stone, when applied, will form a distinct coating. When the roller is used on the metal, the road is at once made fit for service

instead of undergoing a period of settlement under traffic. By the use of a roller, a more durable road can be made, and a considerable saving of broken stone (or gravel) is effected.

In the foregoing survey of the art of road construction a number of the principal branches have been briefly suggested. Each, however, is capable of extended discussion. If their application were intended for only a mile of road, the subject would be of little consequence. But in Ontario with 60,000 miles of road to build and maintain, the reference is to a great public work costing not thousands but millions of dollars. To finance and direct this undertaking is another problem. That much is being attempted is evidenced by the fact that in the ten years 1896-1905, there has been spent on the country roads of Ontario the equivalent of twenty million dollars.

Speaking about taking the beam out of our own eye, most of us could find it profitable these days by selling the timber.

Stop The Leaks

(By C. D. ELLWOOD.)

"Nature never provides for man's wants in any direction, bodily, mental, or spiritual, in such a form that he can simply accept her gifts automatically."

She puts all her mechanical processes at his disposal—but he must make his lever.

She gives him corn but he must grind it. She elaborates coal but he must dig for it.

Corn is perfect. All the products of nature are perfect but he has everything to do to them before he can use them."

What is true in the world at large is also true in the thresherman's world. We have perfect soil, bountiful crops and up-to-date machinery, but that imposing engine, on yon quarter, which formerly belonged to Jones, who bought the engine, but now to the Company who sold it to him, is a mute commentary of his ability to run a threshing outfit and crew economically without having first acquired some expert knowledge of them, and the conditions under which they must be run.

Inexperience, extravagance and lost time, more than the stringent measures used by the companies in collecting, dowered the prairie with those unpaid-for threshers and engines. Still in the face of this, inexperienced and improvident farmers, beguiled by the glittering gold that a select few have made threshing, rush in headlong, buy those monstrous outfits and mortgage their farms to pay for them, when the probabilities are that the farm will all be spent in paying for that first lesson on "How to run a crew and outfit."

I do not wish to discourage any who contemplate going into the threshing business, for the threshing must be done, and from year to year the amount will increase as this great prairie is turned to account. Neither do I want to say anything which would make it seem that I question the judgment of the thresher companies in putting such tremendously large threshers and engines on the market, for in doing this they are but responding to a demand made by the Western farmer and thresher. But I would like you to answer for yourselves a few of the following questions:

Is not \$3,500 to \$5,000 a large sum of money to invest in an outfit which at best can run only six or eight weeks in a year and then lie idle the balance to rust and waste away? Do you think that a flour mill could be run hard enough to make margin enough in one month to afford to lie idle the remaining eleven?

Would it be reasonable for us to expect Jones to invest \$25,000 in a plant for manufacturing wagons and then pick up an inexperienced, indifferent crew to man it and then run it in such a way for two months, that he could afford to let it lie idle the remaining ten and depreciate in value?

Are we doing ourselves justice by waiting and taking chances of our crops being damaged while

waiting for some big thresher to get around?

Can we afford to take the risk of having a large crew quarter on us for days, owing to bad weather or breakage?

Is not ten to fifteen per cent. of the whole crop too much to pay out for threshing only, while our own help and stock lie idle or at best partially so?

Have you considered the expense of that extra wagon, used only at threshing time?

Have you figured the cost of the extra help in the house at this time and the value of the food that that army of men and teams waste?

Did you ever estimate the cost of hauling your wheat to the elevator at threshing time compared with what it would cost after the busy season was over?

If you have given the above questions due consideration I believe that you will agree with me, that the modern threshing outfit costs too much for us to expect it to be a paying investment for the short time that it can be run.

Yes, but some old thresher says: "I paid for my outfit and made money." Very true, but that is an argument in my favor. The fact that a man can invest so much capital, and work it such a short period, in the hands of inexperienced and indifferent men when there is so much chance for loss of time and when they are being paid twice as much as they can ordinarily demand, is positive proof that the farmer is paying too much for the work that he is having done.

Then, are we exercising the best business judgment, when all over the West we begin to dump our wheat on the market and lay ourselves liable to being fleeced by the buyers, because they know that we are in no position to hold for a better market?

Since wheat is practically the only source of revenue in the West, we must keep down the expense of producing it and of putting it on the market. We must devise some plan that will give us a larger period for producing and marketing the crop, so that the men and teams that are ordinarily employed on the farm can do it.

So it seems to me that what we want is an outfit that costs less money, one that requires less skilled labor to run it, and a small crew all around. One that can be run successfully by the men and teams that are permanently employed on the farm. One that will permit of our going on with the plowing and other farm operations just the moment the thresher stops on account of breakage or unfavorable weather.

To date, the outfit, that comes the nearest to filling the above requirements, is the gasoline engine, 20 horse power, and the small separator with the high bagger, self-feeder and wind stacker. To make this outfit the most efficient and successfully operated, since one of the boys on the farm will have completed a brief course in engineering. This will enable him to run

BUY WISELY AND WELL

WHEN BUYING

A RUBBER THRESHER BELT

It's your duty to know what kind is being offered you—by whom it is manufactured, etc.

Don't lose your balance and listen to that "just as good" argument. Just say you want the

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AND STICK TO IT.

The name "Lion" on a belt means every inch an inch of goodness—every thread a worthy thread.

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CALGARY

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EDMONTON

Always—Everywhere in Canada—Use Eddy's Matches

both the engine and thresher. The self feeder does the feeding and the blower takes care of the straw, while the high bagger delivers the wheat into a portable granary, one of several whose combined capacity is sufficient to house the entire crop, and which have been built during the long winter days when labor was cheap. Then four men, with four wagons, four bucket racks and four teams can deliver the sheaves as fast as the small thresher can handle them.

Here we have five men and four teams constituting a perfect threshing outfit. The teams all belong on the farm and so do the men. When unfavorable weather prevails or the thresher or engine is up for repairs the men and teams go on with the plowing. When the threshing is done and Jack Frost has decreed that we shall plow no more until spring, then is a good time to market the crop.

Frozen by Heat, Melted by Cold.

In Germany, the land of scientific curiosities, a substance has been produced by chemical experiments which seems to contradict the law that heat melts and cold solidifies. The substance is called "cryostaz," and is formed by combining equal quantities of phenol, camphor, and saponine with a little turpentine. When its temperature is lowered below the point at which water freezes, it becomes liquid, but when it is heated it turns to the solid state.

In spring, especially in early spring, it frequently happens that after a shower the edge of every pool of water in the streets and along the sidewalks will be bordered by a rim of pale yellow color. As the water evaporates this ring remains as a fine powdery mass, so much resembling sulphur as to have given rise to the popular name of sulphur showers.

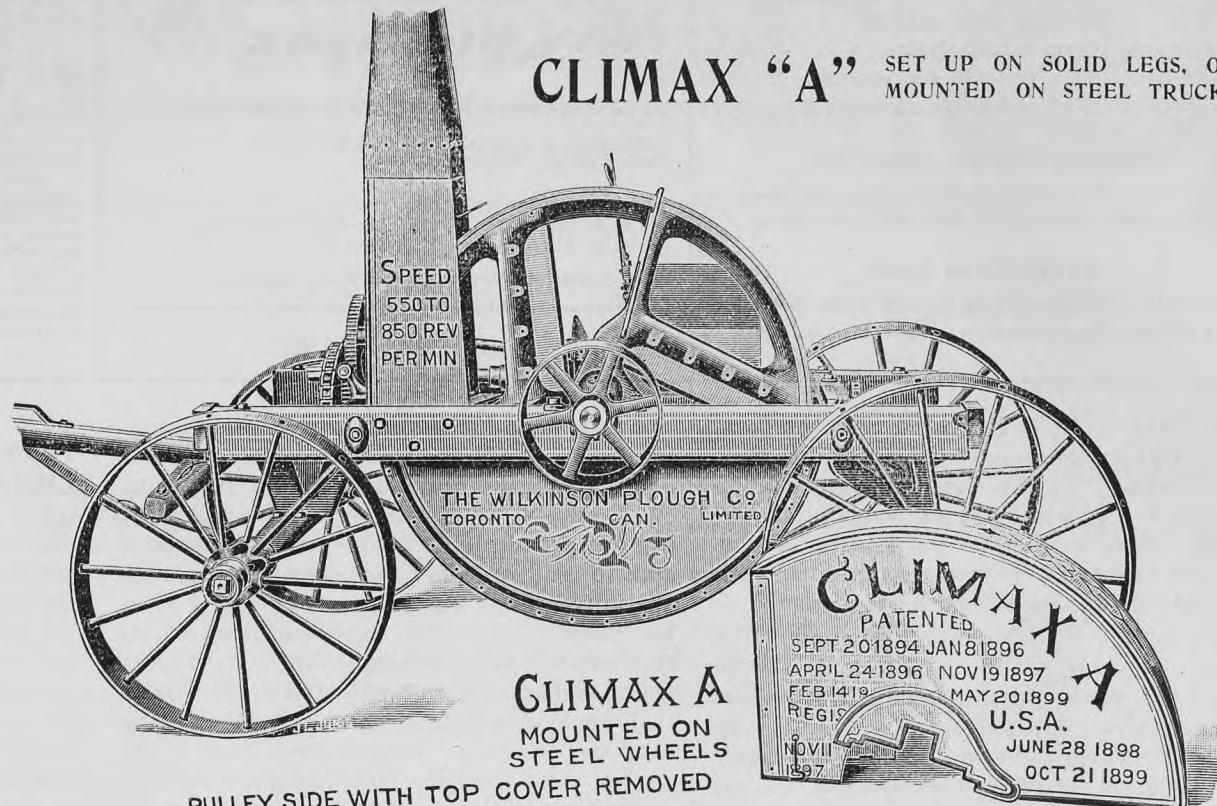
This so called sulphur is not of course really sulphur, but when examined under the microscope is found to be made up of a mass of the yellow pollen grains of pine trees. Instead of consisting of a single cell, as do most pollen grains, that of the pine consists of three cells, the two larger end ones being filled with air, and the other containing the ordinary fertilizing principles. The two air containing cells are larger than the other, and act as balloons to buoy it up.

In pines and allied trees fertilization of the cones, by which they are enabled to set and develop seeds, is accomplished by the wind. That is, the pollen is produced in immense quantities, and is transported through the air to the cones, which are often on separate, widely distant trees. Thus it often happens that the pollen gets up in the higher currents of the air, is carried for long distances, and is brought down to the earth only by the rain, producing the so called shower of sulphur.

A shower of this kind occurred some years ago in Washington, D. C., and was sufficient in quantity to be very noticeable. By careful investigation it was determined that no pine trees could possibly be in flower at the time (March)

PNEUMATIC STRAW CUTTERS

CLIMAX "A" SET UP ON SOLID LEGS, OR MOUNTED ON STEEL TRUCKS



Power required—12-horse power engine.

Capacity—4 to 7 tons of hay or straw per hour, practically unlimited, and will deliver anywhere in your barn without waste or handling.

Length of Cut— $\frac{1}{2}$ -inch to 4-inch and cut clean by tempered straight steel knives cutting against a steel faced bar. Seasoned hardwood frame. Heavy turned steel shafting. Malleable iron part where extra strain. For 1907-8, knife wheel extra heavy, webbed between back of knife and fan arm, and steel tire shrunk on. Fan case heavy steel, top and bottom; and heavy steel discharge spout.

Illustrated catalogue, price and further description given on request to

THE STEWART NELSON CO., LTD., WINNIPEG

OR TO THE MANUFACTURERS

THE WILKINSON PLOUGH CO., LTD., TORONTO, CANADA

nearer than Alabama, Georgia, and the Carolinas. It was recalled that rain had been preceded by a strong wind from the south, which had borne the pollen for hundreds of miles and precipitated it when the storm occurred.

What to do Upon Certain Occasions.

If you are impatient, sit down quietly and have a talk with Job.

If you are strong-headed, view Moses.

If you are getting week-kneed, look at Elijah.

If there is no song in your heart, listen to David.

If you are a policy man, read Daniel.

If you are getting sordid, spend a while with Isaiah.

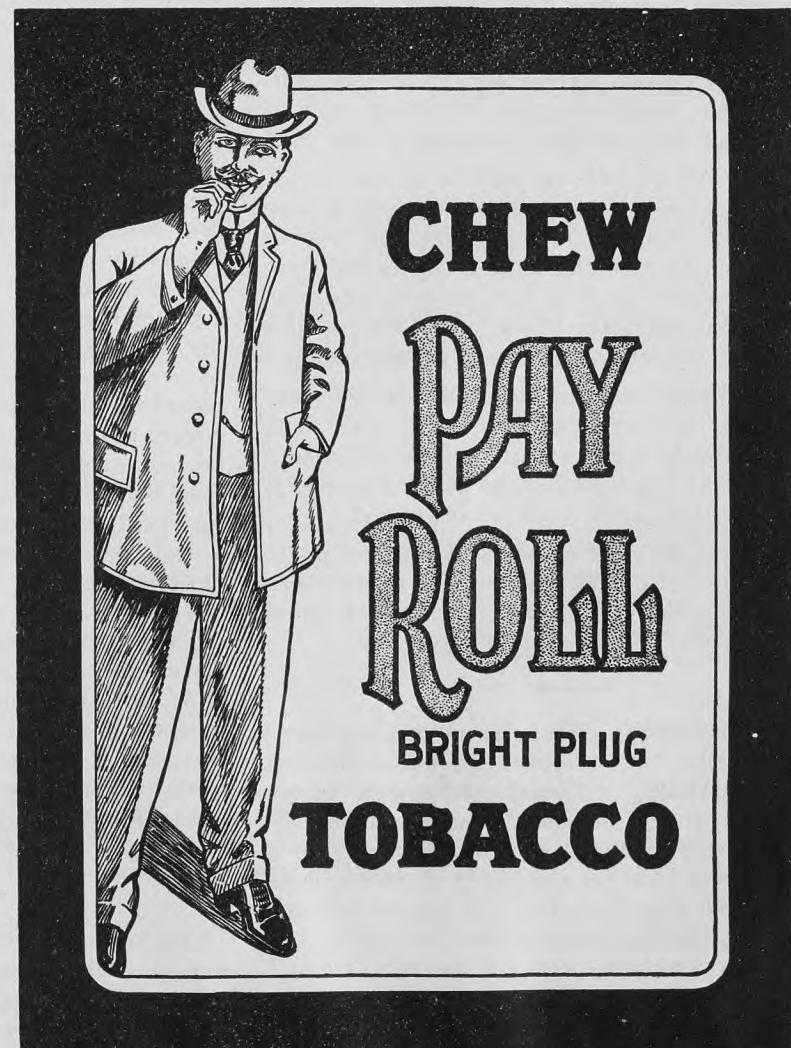
If chilly, get the beloved disciple to put his arms around you.

If your faith is below par, read Paul.

If you are getting lazy, watch James.

If you are losing sight of the future, climb up to Revelation, and get a glimpse of the promised land.

Love is blind, but the mother-in-law is a good eye opener.



PURELY AGRICULTURAL.

SUBSCRIPTION RATES.

Postage prepaid, Canada, and Great Britain - - - \$ 50
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Advertising rates furnished on application.

CORRESPONDENCE SOLICITED

From Farmers, Threshermen, Machine Agents, and others, on matters pertaining to the subjects dealt with in this Journal.

ADVERTISING COPY.

Advertisers' copy should reach us early in the month preceding the date of issue—certainly not later than the 10th.

HOW WILL THE MONEY BE SPENT? It is estimated that the total revenue from all grain crops in Western Canada, in 1907, will be in the neighborhood of \$97,000,000, or in other words this is the amount that the farmers will have to spend between now and the time the last bushel is marketed.

Part of this will go toward purchasing the actual necessities of life, a portion of it will be set aside for the liquidation of debts past due or coming due, a portion of it will find its way into permanent investments or into the banks as savings, and still another portion will go towards luxuries such as trips, increased living, the grog shop, etc., etc.

It is not for any man to tell another how he shall spend his money, but it is nevertheless of considerable import to the country at large just how the above sum is to be distributed—into what channels it goes.

The first duty of every man who has money at his disposal is to provide proper comfort for his family. No man has a right to so tie up the fruits of his labor that he cannot contribute his proper share towards a home. True it is that circumstances sometimes force a man to mortgage and chattel his very soul, but in the main if a little more care were exercised by the average farmer fewer mortgages would be found upon the records. That new binder need not have been bought nor that threshing outfit if the owner had exercised reasonable care with the old ones.

That extra quarter section was not a wise move with a standing debt against the original holdings. In fact the load to be carried was proportionate only to a bumper crop, and with an average yield the fiddler must wait for his fee or the farmer and his family go begging.

The liquidation of debts should be the next entry in the farmer's bank book, and when these are taken care of just put the remainder in the bank for a short time and ten to one it will stay there for a much longer period.

There is sufficient money in Western Canada the present season if rightly spent to set every wheel of trade in motion, the general good effect of which will be felt by every one.

AN OLD STORY BETWEEN NEW COVERS.

There is no getting away from the fact that Western Canada like most every other country upon the face of this mundane sphere, has met with a few adverse blows at the hands of the elements during the present season. It has not suffered out of proportion to its general prosperity, but calling a "spade a spade," it has been hit and the yield of grain will be less than it otherwise would have been.



A Magazine of Farming and Farm Machinery.

Published monthly by E. H. Heath Co., Ltd., at the Union Bank Building, Winnipeg, Canada

E. H. HEATH - - - President and Manager.
 E. W. HAMILTON - - - Editor.
 Members Western Canada Press Association.

NOVEMBER, 1907.

NON PARTISAN.

Failing to receive paper you should notify the office at once when mistakes, if any, will be corrected immediately.

OUR GUARANTEE.—No advertisement is allowed in our columns until we are satisfied that the advertiser is absolutely reliable, and that any subscriber can safely do business with him. This puts us in a position to positively guarantee the reliability of each and every advertiser in the magazine. If any subscriber is defrauded, E. H. Heath Co., Ltd., will make good the loss resulting therefrom, if the event takes place within thirty days of date advertisement appeared, and complaint be made to us in writing with proofs, not later than ten days after its occurring, and provided, also, the subscriber in writing to the advertiser stated that his advertisement was seen in THE CANADIAN THRESHERMAN AND FARMER. If you act in good faith and be defrauded through an advertisement in this issue, we will make it right to you on the above stated terms. Be careful when writing an advertiser to say that you saw the advertisement in THE CANADIAN THRESHERMAN AND FARMER.

OUR FARMERS' LIBRARY.

In our October issue we made mention of an offer whereby every farmer in Western Canada might secure a library free, the only requirement being that he give us his experiences in farming. That issue has been in the mails scarcely a month, but in that time we have received many interesting letters for our experience department. Much of the information obtained is first hand and right to the point, and just as soon as we can get the letters edited and a suitable department arranged we feel confident that this will be one of the most valuable features of our magazine.

Canada is brimful of invaluable information stored up in the minds of her farmers. The great trouble is to get hold of it, but we feel that we have at last partially solved the problem and we do not hesitate to promise our readers an interesting and instructive treat during the coming months. Every letter contains some new thought or idea, simple perhaps, and you'll wonder, reader, why you never thought of it before, but as the mind of man is limited in its capacity it is not expected that any one farmer will have thought of all things connected with the science of agriculture. We want to make this department a "farmer's forum" for the discussion of everything pertaining to farming. If you have found something that has helped you pass it on and let your neighbor reap the benefit.

We want the farmers' wives to join with us in this work. Their experiences in butter-making, poultry raising and gardening are well worth a place in our columns. Let us have them and we will pay you liberally.

THE Heath School of Traction Engineering (by correspondence) is now in full swing, and many are availing themselves of its valuable instruction. Better get into line and get started before winter starts on its race towards spring.

DON'T forget to house the outfit when the threshing season is over this fall. It has done its work just as faithfully as your skill allowed and is well worthy of suitable winter quarters. Besides you cannot afford to do otherwise, viewed from the standpoint of dollars and cents.

There is a cry on all sides regarding the lightness of the money market—that there is not sufficient funds in the country with which to do business. This is true to a certain extent but it is not true that it should be laid entirely to a proclaimed shortage in the crop. There are ulterior financial reasons that the banks could tell you about if they should choose to do so, but its ten to one they won't. However, with plenty of money in the pockets of the farmers, there is no cause for alarm.

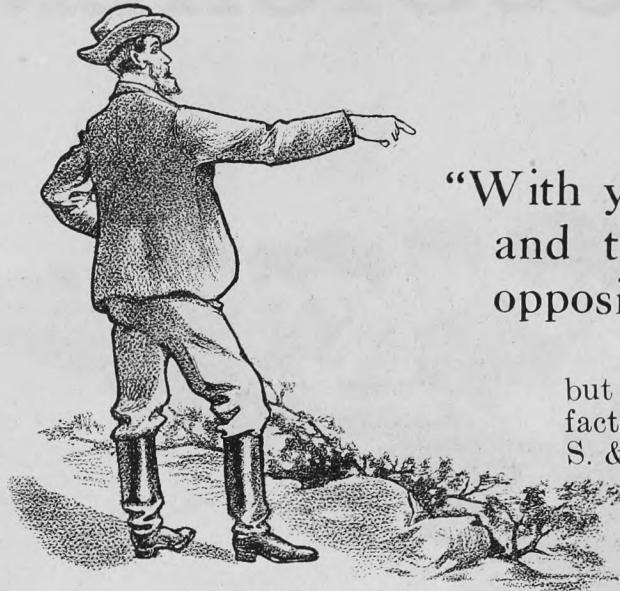
ONE farmer at Stonewall, Manitoba, recently sold his 200 acre crop of wheat for \$4,600, an average of \$23.00 per acre. It's a bumper crop, but Western Canada did it.



THE "GREAT WEST"



**One of our Western Customers
writes us as follows:**



"With your new 26 h.p. Thresher and Plowing Engine and the 'Great West' Separator, you have all the opposition dead skinned."

This language may be more forcible than eloquent, but there is nothing like the Western vernacular to express facts. It indicates the prevailing sentiment in favor of S. & M. Goods.

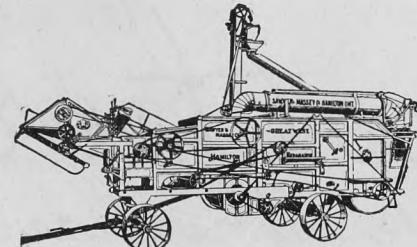
S. & M. Boiler "Dome Equipped" is of Open Hearth Flange Steel of the highest tensile strength.

The Fire Box is specially roomy and this in conjunction with the ample Heating Surface of Boiler equipped with Seamless Steel Tubes and direct draft, insures rapid generation of steam.

The vital parts of the Engine proper such as Cylinder, Crank Shaft, Cross Head, Disc, Reverse, Friction Clutch, etc., are all of the highest type. Examination will reveal the care displayed in their construction and the exactitude with which they are fitted in their respective places.

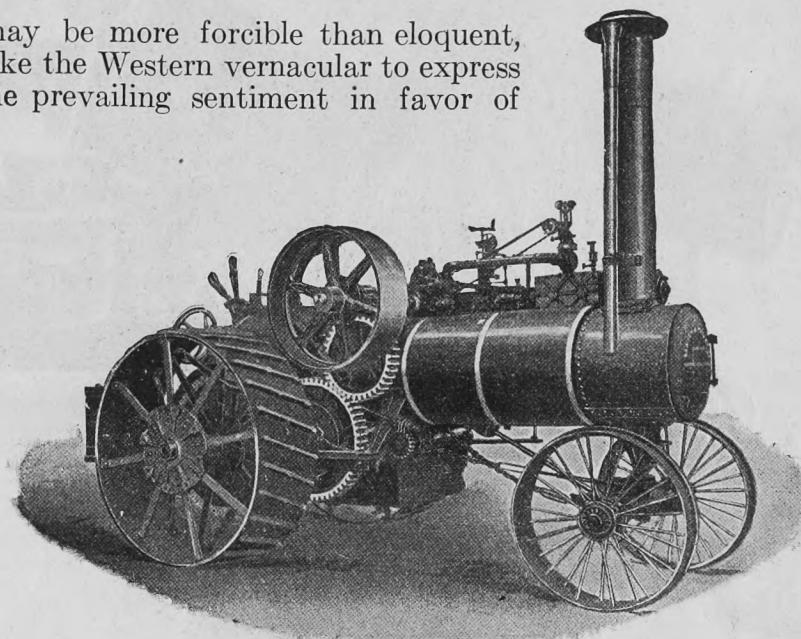
The Gearing of the Combination Threshing and Plowing Engine evidences our skill as Engine Builders. The cogs are specially involuted and the exactitude of mesh and alignment give smoothness and power and long life to the Gear.

The equipoise of the whole Engine and the smooth and easy Carriage of its weight on specially designed Springs relieve Boiler parts of strain and account for its well preserved condition in after years.

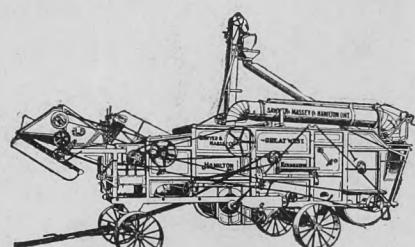


The "Great West."

Write us for an Illustrated Catalogue of our Combination Threshing and Plowing Engines, the "Great West" Separator and the parts that go to make them so efficient as complete Outfits.



Sawyer & Massey's Celebrated (Combination) Threshing and Plowing Engine.



The "Great West."

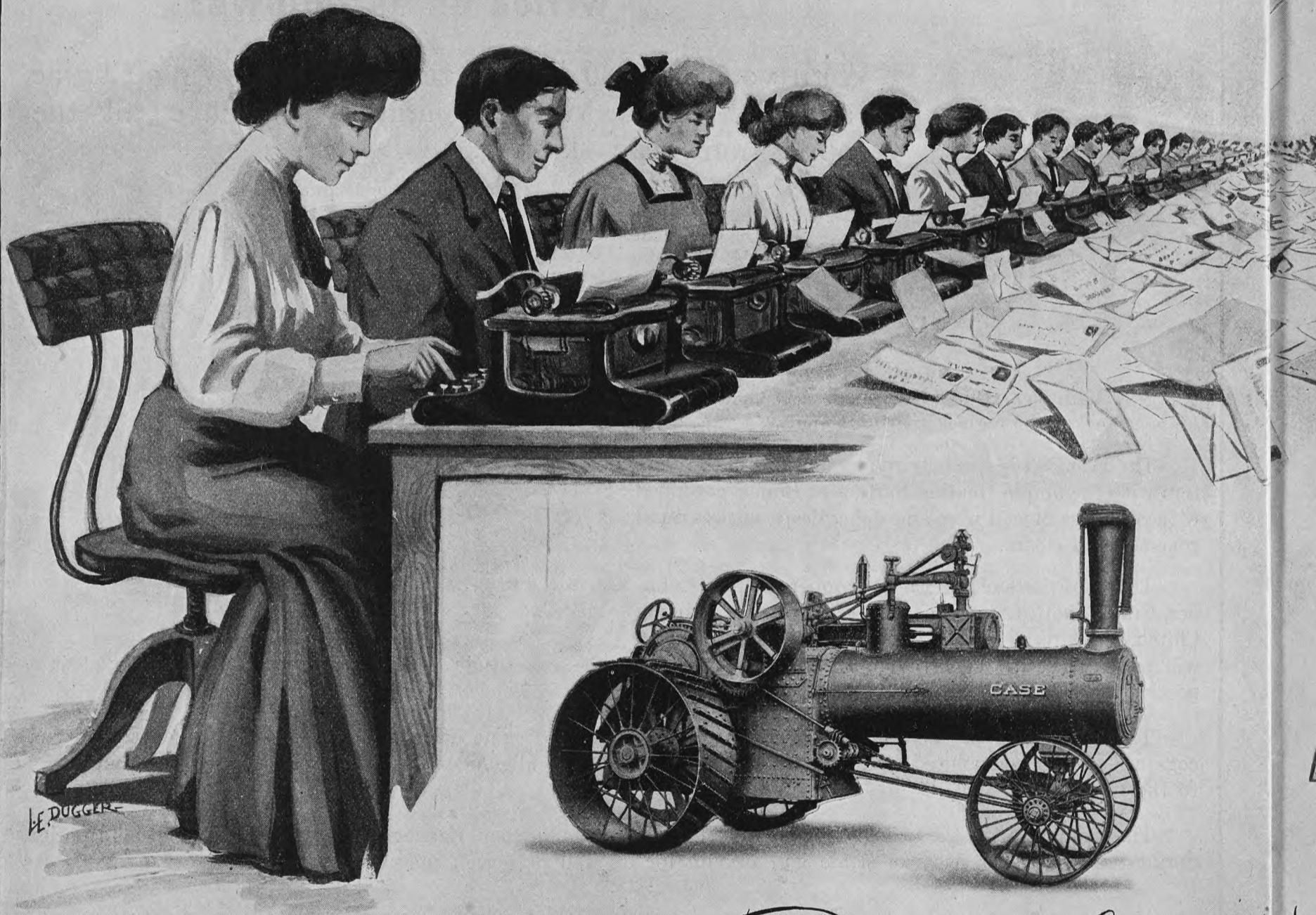
Sawyer & Massey Co. Limited.

Established 1836, Hamilton

WINNIPEG, MAN.

Manufacturers of Engines, Threshers, and Road Making Machinery.

A MESSAGE TO OUR CUSTOMERS

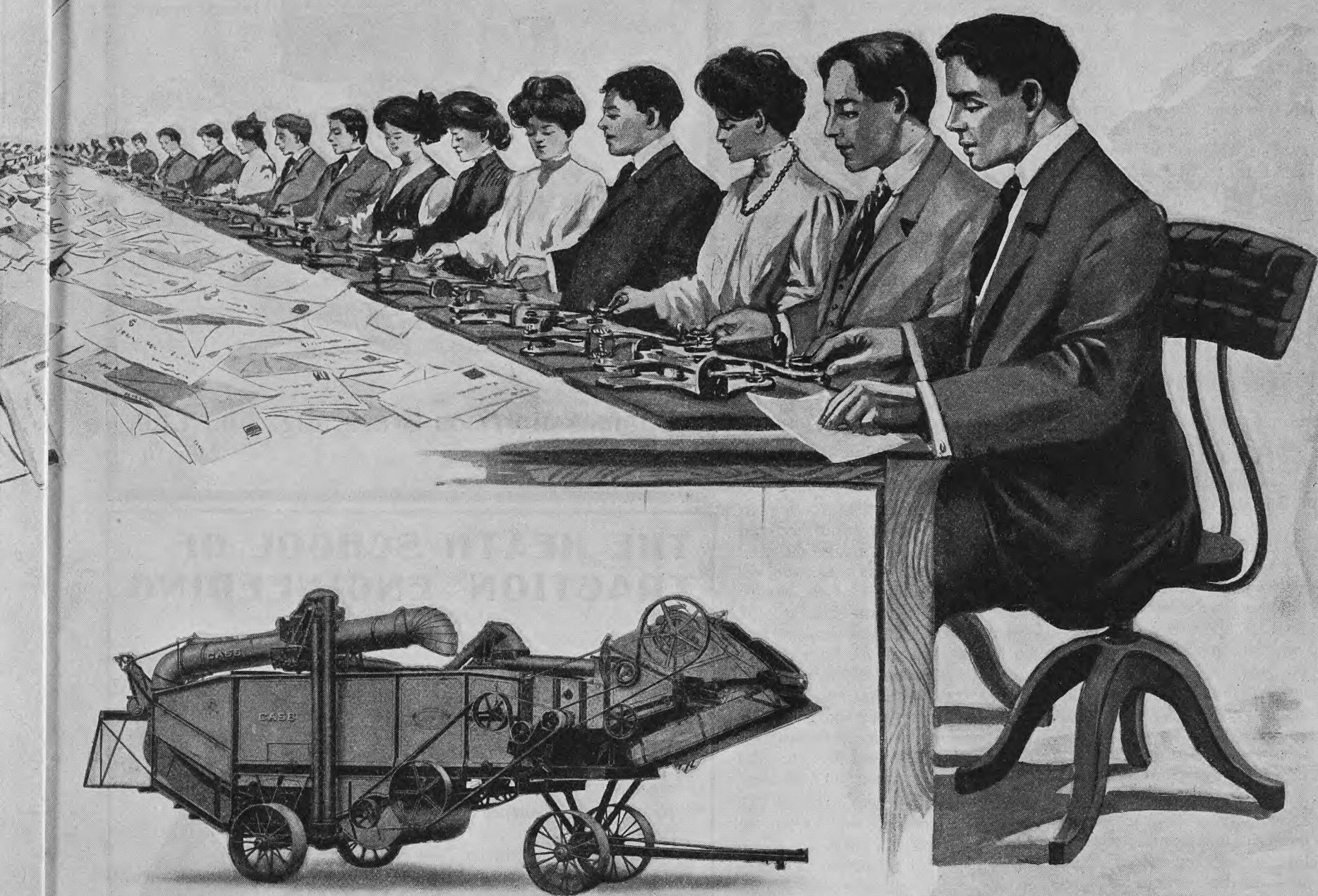


Brother
May the good work you have done for your
customers, and the good results thereof, make

J. I. CASE THRESHING MACHINE CO.

TORONTO WINNIPEG

OF THANKS S AND FRIENDS



Threshermen!
Come with Case Machinery for your
make this day of thanks your day of joy
Sincerely Yours

D. RACINE, WISCONSIN, U. S. A.

Threshing in Canada

As Done by Some of Canada's Best.

These letters were entered in competition for the Thresherman's prizes offered last December. They are all good and a choice was hard to make. All are full of information and are well worth the reading.

(CONTINUED FROM LAST MONTH'S ISSUE).

St. Elizabeth, Man., Feb. 11, 1907.

Dear Sirs:—Being a subscriber and reader of your valuable paper and seeing several letters from brother threshermen, how they operate their outfits, and as I often learn something new which I can use to my profit in the threshing business, I will try to give the plan I have adopted after three years experience in the field. My threshing outfit consists of a 26 h.p. Port Huron engine and 30 x 60 separator with all attachments which I consider is O.K. in their line. First of all I hired a first class engineer and separator man, regardless of wages, providing they were capable, as they were the backbone of the outfit. I might mention here that I always hire the above two men by the month, as their work is never finished until the fall's run is over, next I hire eight good teams and drivers, also eight pitchers which I pair off with the drivers. When they get their load on they both come back to the machine ready for business as quick as the load drives out. In this way there is no waiting for the spike pitchers to climb on the load, while the driver is getting his load in position and the hungry separator running empty, which causes the grain to go over the shoe, and which causes both the farmer and thresherman a loss. Then when it comes to cleaning up to move the machine the last two teams with their drivers and pitchers clean up and help roll the belt, etc., they then drive along with the machine to help set and put the belt on again. By this means it only takes a few minutes to move and set, in fact, I have accomplished the act from when the belt was thrown off until it was threshing again in four minutes.

Without having two men with each team it would require ten teams to keep a 40 x 64 separator running steadily, and besides not as satisfactory in the end, as it is impossible to watch the field pitchers when they are left in the field, as there are always some men ready to shirk, besides in hot days I always keep a good supply of drinking water or such like at the machine, so they do not have to leave their work to go for a drink. Last fall I put in an adjustable sieve, and I can safely say that they will pay for themselves every year in time saved.

I have my own cooking carboose and sleeper which is a great benefit to both farmers and threshermen, and the good housewife has never to get ready to board the men, therefore the farmer can always be ready for the despised and dirty threshers as we are so often called by those who do not

know the hardships we have to put up with.

Trusting this will be some benefit to my brother threshermen, I remain

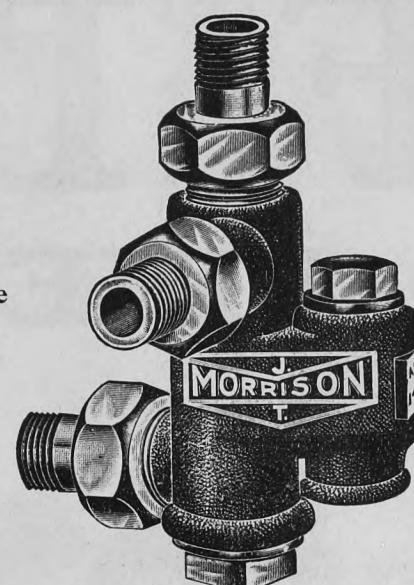
Yours truly,
C. H. SUMNER.

Weyburn, Feb. 27, 1907.
Dear Sirs:—

I take the Canadian Thresherman and Farmer and find it a very good paper with lots of good reading in it. I saw in it that you are offering a prize for the best letter from threshermen. My brother and myself have an outfit a Battle Creek Advance 22 H.P. engine and 36x60 Separator with all attachments. We find it a good outfit, but the worst of it is we are 30 miles from town in a new country and the people are so far apart, and it is no fun when you have a breakdown and you have to go to town at night for repairs. Well, I guess we broke the record last fall for small jobs. We threshed for 52 farmers and the amount of bushels was 27,000 in 33 days, and moved over a hundred miles to do it. Our price was 4 cents for oats and 5 cents for wheat. The farmers found the pitchers and we found the rest of the gang. I ran the engine and my brother ran the separator, one man fired and another hauled straw to the engine, so we ran the machine with little expense. Our biggest job was \$72.00. We have threshed 500 bushels of oats in an hour, but it was a good crop of course and short straw. There was a very light crop here this year on account of dry weather, the wheat averaged about 15 bushels to the acre and oats about 30 per acre.

SIMPLE

RELIABLE



The J.M.T. INJECTOR

Workmanship
the Best,
All Sorts
Interchangeable

EFFICIENT

DURABLE

The J.M.T. Injector is an ideal Boiler Feeder for Portable or Stationary Boilers.

Thousands in use throughout the Country—they're fully guaranteed—of your dealer or direct.

The James Morrison Brass Mfg. Co., Ltd.,
93-97 Adelaide St. West — — — TORONTO

THE HEATH SCHOOL OF TRACTION ENGINEERING

(BY CORRESPONDENCE).

We have just issued a
new booklet describing The

Heath Correspondence
System, and a copy will be
sent free of charge to any-
one interested.



ADDRESS

E. H. HEATH CO. LIMITED
WINNIPEG
MANITOBA

GENTLEMEN.—Please send without cost to me, one copy of your booklet, fully describing The Heath School of Traction Engineering (by correspondence).

Name.....

DID
YOU GET
DESCRIPTIVE
BOOKLET

?



= A RUTH = Love Letter

Thor, Iowa, Sept. 30, 1907.

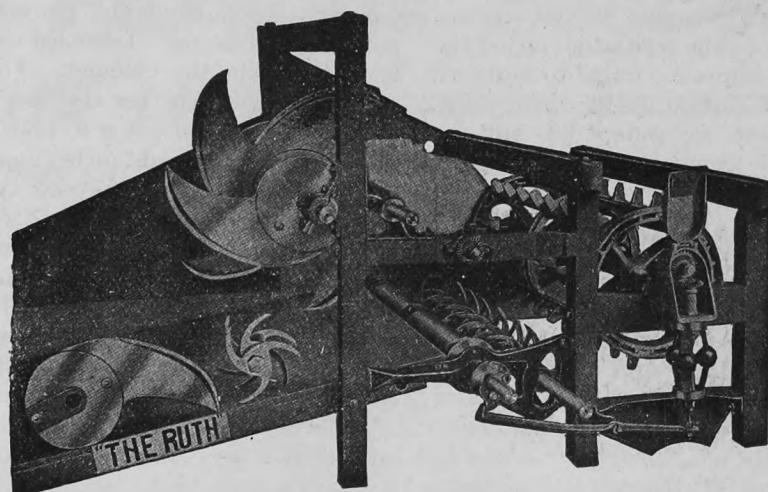
Parsons Band Cutter & Self Feeder Company,
Newton, Iowa.

Gentlemen:

The Self Feeder we bought from you last fall is one of the best we have ever seen. It will never slug the machine. We have not lost or bent a tooth this year.

Yours truly,
(Signed) O. Johnson

R. F. D. No. 1



Mfrs. also of Success Engine Tender, Belt Guide, Cylinder Wrench, Strainer, Buffalo Hay Press

WARRANTY

The RUTH FEEDER is guaranteed to feed any make or size separator to its full capacity without slugging the cylinder or loosening a spike, and to do a better job of feeding than any feeder manufactured by any other company.

Why do We Make it So Strong?

Because the Ruth Feeder has filled that warranty for years. Then why not warrant it to do what experience has shown it will do?

PARSONS BAND CUTTER & SELF FEEDER CO., Newton, Iowa

PARSONS HAWKEYE MFG. CO., Sales Agents, Winnipeg, Man.

THE CHAPIN CO., CALGARY, SALES AGENTS FOR ALBERTA.

home that night a distance of 15 miles and then to town 30 more. He had typhoid fever for five weeks, so we had lots of trouble after all.

Well, we have run our machine two seasons, but threshed four seasons before that. We find the straight flue boiler the best steamer. It is far better than the return flue. Our Advance is a dandy to steam. We never stopped one minute for steam last fall, and used only 3-12 barrel tanks of water in a day and it runs the separator easily, but I would like to have a headlight on it. I always handle my machine with the throttle on the road instead of using the friction, for you can't always depend on the friction. When I have a hill to go up I take the wrench and loosen the set screw, and drive in the pin which makes it safe, for there is always some oil dripping on the friction shoe and it is apt to slip and cause trouble, so I always put on the friction good and tight and leave it on all the time I am moving. When I back up to the separator I can come back as easy as I like. Some engineers come back full speed just to see how quick they can couple up, but I think it is best to take a little more time and make it safe.

Well, this is my first letter to

you and I guess I'll quit, wishing your paper success,

Yours truly,
W.M. DIETRICH.

Arlington Beach, Sask., Jan. 14th.

Dear Sirs,—In regard to threshing—we are threshers young in the business. Our outfit consists of 25 H.P. engine and 40x62 separator of Case manufacture. We threshed this season 45,000 bushels of wheat besides rough grain and flax and had to move long distances between jobs. Once we moved 25 miles and another time 10 miles—it was quite common to have to move 3 to 4 miles between farmers. Some of the jobs being very small, and others just the reverse. We threshed our biggest job for one man, 15,000, and 56 bushels for our smallest job. We charged 6 and 7 cents in stuck threshing and 4 and 5 cents in stack.

A threshing crew generally consists of 8 stuck teams with drivers, 8 men to pitch, that is two with each team we find the most successful, a water team and man, a straw team and man, engineer, fireman and separator man. The expense of same are as follows:

Teams, ten at	\$4.00	-	\$40.00
Pitchers, at	2.00	-	16.00
Fireman	2.50	-	2.50
Engineer	5.00	-	5.00
Separator tender	4.00	-	4.00
			\$67.50

As men were very scarce we could not run with a full crew and often

had only half a crew, but find it does not pay to run without them as so much time is lost.

Most threshers blow their horn about threshing and do not stick to the truth, and like to see their letters in print which they know and so do their neighbors are untrue and misleading. I would never advise a man to buy a threshing rig unless I had a grudge against him. Of course if a man has from 10,000 to 20,000 bushels of his own it would pay him to have a rig and a big one, as small ones do not pay as well when the difference in cost is taken into consideration. Then he could do his threshing in the proper season and probably save from 6 to 10 cents per bushel on market price by early threshing. Then he can plow with his engine if his land is suitable and that means quite a lot when he can keep his teams drawing to market at the same time. We intend plowing about 500 acres this year with our engine and backset about 400 if all goes well, and pull a disc and drag harrow behind when back-setting, and so make use of our engine in its idle time.

We would like if the Canadian Thresherman would print the law regarding threshermen's collections as we find it very hard to collect our accounts and some have beat us entirely, which knocks the profit off threshing considerable. On the whole we got through much better than we expected, as a lot of farmers

are very poor up here and are just barely making a living, and they think they have done a kind act when they haul their wheat out in the night and do their thresher up. Yours truly, ARMSTRONG BROS.

Westview, Sask., Feb. 26, 1907.

Dear Sirs,—My twin brother and I came to Canada five years ago last fall. We were fourteen years old. The first fall we were here we went stuck threshing. We both went with the same team. Then I made up my mind to learn to run an engine, so the next fall got a job firing on a threshing engine, and Harry got a job firing the same fall. I fired the next fall and Harry went with another outfit. The next summer I got a job steering on a steam plow rig. I never worked at anything I liked better than with an engine, either plowing or threshing. The next fall my father got a second hand threshing rig which was supposed to have been put in good repair. When we went down to get the rig, I, of course, looked the engine over thoroughly, and discovered there were no caps on the compensating bevel pinion boxes. The engine had plowed some that summer and there was water in the boiler yet. I had it filled with water and started the fire and we soon had steam up. Then I had to pack some of the valves, and the pipings or joints leaked very badly. However we got steam enough to

start, then we pulled around to the coal shed and got enough for our trip. We pulled around to the separator and coupled on and started. As soon as the separator started the engine stopped. Come to find out, the disc slipped on the main shaft, and there we were. We got the disc off after a while and found there was no key seat in the shaft. There was a wedge driven in the key seat in the disc. I cut a good seat in the shaft, put on the disc and keyed it solid. By this time it was nearly dark so we pulled out on the roadside for the night.

The next day we started for where we were going to thresh, but before we got a mile away the eccentric got hot. We stopped and shimmied it up so we could screw the nuts down tight without making the eccentric straps too tight, and made sure the oil reached the bearing. It never bothered any more. I suppose you will wonder how there came to be no seat and key in the shaft, the engine had been handled in such a way as to spring the main shaft next the disc. To straighten the shaft the damaged part was cut and the shaft set in, of course this made the shaft shorter, but it was long enough to make this possible. After we threshed awhile the injector bothered. Instead of it sucking the water, the steam would blow through the suction pipe and heat it hot. I took off the union of the suction pipe next to injector, I found the lower part of the suction jet had worked loose and got so low that part of the steam went back through the hose. I screwed it up to its place and the Penberthy injector hummed like a new one. The same thing occurred several times that fall, but it only took a minute to fix it up. Before we got the engine the fly wheel used to work loose and they could not make it hold. They put in another set screw, still it would work loose. We worked with the fly wheel until it lacked about an inch and a half of being off. Then we wiped the shaft off also inside the hub with dirt. The dirt took off the grease and some of the dirt stayed in the hub, which made the wheel fit together on the shaft. I put some dirt in the key seat on the shaft and hub, then put liners in with the key sufficient to make it tight, then drove the key in tight. I ran the engine the rest of that fall and last fall. We have plowed and disked and the fly wheel has shown no signs of loosening.

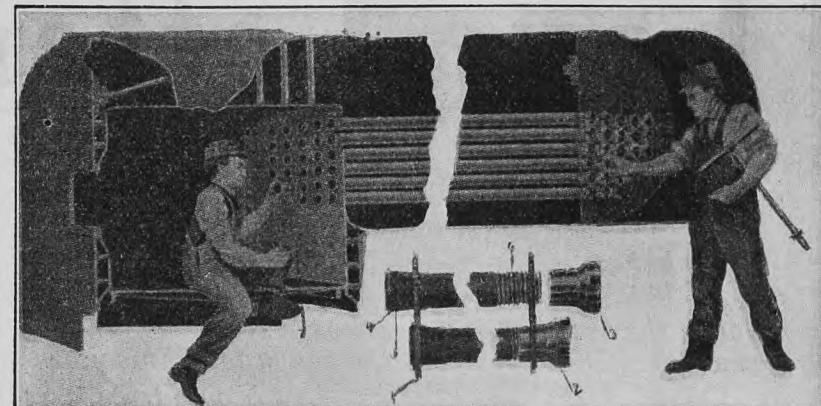
I had some trouble with the piston rod so took it out and sent to town. The machinist examined it and found that the head was cracked so we sent for a new head, and he straightened the rod so that it was perfectly true. He put it in the lathe and turned it back $\frac{1}{8}$ inch, then he shrunk on the new head, battered the end of rod to keep the nut from working loose and put the rings in their proper places. I put it in the engine and it ran nicely for

a couple of days when it began to hammer or pound. I watched the engine very closely, and the knock seemed to be in the crank pin and pillow block bearing. I decided the trouble was in the cylinder. The way to find out whether the knock is in the cylinder or not is to take a piece of steel six or eight inches long, or a lead pencil, put one end between your teeth the other end on the cylinder, then plug your ears. Go over your engine in this manner and you can locate any knock. The machine agent came out that day and told me to take out the waste that was in the pillow block box, oil hole and pour in some oil, the oil moved a very little, and he said the knock was there. I knew the knock was not there as there was not lost motion enough in that box to make scarcely any noise. The next day I took off the high pressure cylinder head and found the trouble where I thought. The machinist had not completed his work, he had not turned the shoulder back at the bottom of the thread and the nut did not go up tight against the piston head, this gave the piston head a chance to play on the rod. I put a washer on against the head and screwed the nut up tight, then riveted the end of piston rod against the nut, then I put the cylinder head in place. I started up and was very pleased to see how smoothly it ran. The engine ran fine all the rest of that fall. The separator gave the most trouble the first fall. It had an old fashioned self feeder, the only way it had of stirring the sheaves was by the band knives which were dull and soft. Some bundles would get through without being cut, this was hard on the cylinder teeth, and knocked out lots of them. Then these teeth would work down on the sieve and once in a while one would work back into the fanning mill and break out the fans. This happened several times before we found the trouble but we put a stop to it by tacking a strip of old belting on the back of the sieve which kept the teeth and nuts from working into the fanning mill. Before starting to thresh last fall Harry and I overhauled the rig. We babbited the boxes and overhauled the separator generally and babbited the main shaft on the engine. After we put the rig in repair it ran fine, in fact one man who saw it when new said it never ran better. We fed by hand last fall.

I might further add that the first fall we had the rig Harry fired for me and we hired a man to run the separator. The separator was so badly run down before we got it, that we had no chance to make scarcely anything the first fall. So that next fall nobody had any confidence in us on account of the name it got before we bought it, and the record it made the first fall we had it. But last fall Harry ran the separator, and we had a pretty good, but a short run. Yours truly,

W. A. STEBBINS.

THE ONLY
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Several hundred sets of these flues are now in use throughout the Middle States and great satisfaction has been the experience. Why continue behind the times by using the old common style flue when this new device can be so easily and cheaply installed? It will mean much to you to investigate the merits of this boiler flue.

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The Detachable Boiler Flue Mfg. Co.
Of Canada

Portage La Prairie - - - - - Man.
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YOUR ENGINE AND . . .
INCREASE YOUR PROFITS**



Not only in threshing season will you find it profitable to own a good headlight, but at all times of the year, especially just now when it gets dark early. You may be plowing, running a saw mill, or want to move your engine after dark, just place a HAM HEADLIGHT on your engine and you have an immense bright light just where you need it.

HAM'S HEADLIGHT is designed and built especially for use on traction engines. We use only the best material and it is made extra strong to stand the jolting, we use a regular locomotive headlight style of burner, and the reflector is nickel-plated and then heavily silver-plated, and the result is a powerful reflector that will project a strong volume of bright light penetrating the darkness much further than ordinary headlights.

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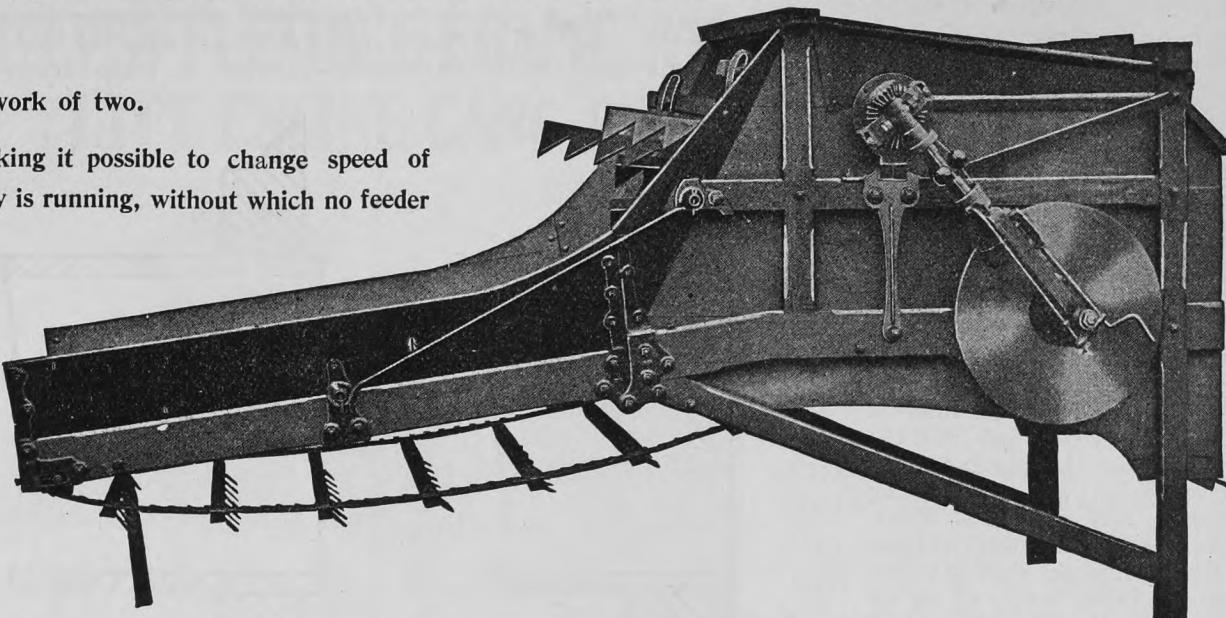
An engine governor that does the work of two.

A strong variable friction drive making it possible to change speed of rake and feed while machinery is running, without which no feeder can be a success.

Impossible to feed until cylinder has attained threshing speed.

Stops feeding in time for machine to clear itself.

Adjustable in all working parts.



PARSONS BAND CUTTER AND SELF FEEDER CO.

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PARSONS HAWKEYE MFG. CO., Sales Agents
WINNIPEG, MAN.

Cayley, Alta., Feb. 25th, 1907.
The Canadian Thresherman and Farmer, Winnipeg.

Gentlemen,—The past season in this district was rather disappointing from the thresherman's standpoint of view. We grow very little spring wheat and our fall wheat the past year was almost a failure, the land in nearly every case being re-sown with oats. Growth being late in starting in the spring kept the harvest late, (consequently the threshing season was later than usual in getting started, so that threshermen had to contend with the short days and night frosts, which very often prevented operations in the morning when threshing from the stook).

I run an American Abell outfit consisting of a 22 H.P. traction engine and 32x52 Toronto combination separator with a Parsons Hawkeye feeder, perfection weigher and wind stacker. I started out with my rig about the 20th, September, carrying a complete crew, made up of 6 stook teams and drivers, 6 pitchers in the field, a separator man a water man with a four-horse team on the tank, and an engineer. I run my own engine and as I burn coal I don't need a fireman. I think that all things considered coal is about the cheapest fuel for anyone situated as I am about 20 miles from the mines, where it can be bought for \$2.00 per ton. I burned on an average 2,500 pounds per day.

When I threshed from the stook the farmer had to take the grain from the machine, and feed my crew and horses. My prices were 5 cents for oats, 5½ cents for barley, and 8 cents for wheat. I threshed 30 days with the stook outfit, then I dropped the stook teams and threshed 16 days at the stack. In stack threshing I charged 3, 4 and 6 cents and the farmer boarded the crew and took care of the grain.

I was always first at the machine in the morning and last at night, always making sure that everything was alright both before starting and after quitting. I had no trouble with men as I used them like men and made each man feel that the machine couldn't do its best without him. At the same time I never hesitated what to do if a man was indifferent to my interests. My crew was always ready to go to work as soon as the grain was fit to thresh, and if I wanted to work two or three hours late in order to finish a job, every man was as anxious to get through as I was.

The two teamsters with the last two loads at a set stopped to help clean up, also two pitchers came in from the field, one from each side of the machine (I put three teams and three pitchers on each side of the machine), and never allowed any changing of sides, so that each team came in their turn. As soon as the last shovelful of grain was on the feeder, the belt was pitched and each man knew his job in getting

ready to move, and we pulled for the next set where we found two loads waiting, and in less time than it takes to tell it, we line up and go at it again.

One Monday forenoon the grain was too wet to thresh, it having rained on Sunday night. That day while we were all standing around talking about big work one of the boys said, "I'll bet we get 15,000 bushels through this week yet." I said, "Boys if you do it I'll give every man on the job a new hat. The next Monday morning fourteen new hats were very much in evidence.

I always give 38 pounds to a bushel of oats, 50 of barley and 62 of wheat. I think the fairest way to thresh is by weight and have found very little objection to it.

In this part of Alberta there are no very extensive farmers so that my jobs were all small, ranging from 1,000 to 4,000 bushels. I threshed for 38 different farmers, in doing that my engine travelled as near as I can make it, about 82 miles. In all I was out 46 days and I averaged a little over 2,000 bushels per day. Every bushel I got through cost me on an average 4½ cents.

During the season I had no serious mishaps. At the finish I pulled my rig in as good shape as I started except for the natural wear.

I am a believer in threshermen's organizations, and think that threshermen are to blame themselves if we don't get living prices

for our work. No fair-minded farmer wants his threshing done at the threshermen's expense. I think there should be a better understanding between threshermen themselves and also between threshermen and farmers, as their interests are one.

Wishing the Canadian Thresherman and Farmer every success in its endeavor to better and build up the threshing fraternity, I am, Yours truly,

DONALD SINCLAIR.

◆
Threshing from the Stack vs.
Threshing from the Stook.

Pipeton, Man.
Canadian Thresherman and Farmer.

Answering your request as to my experience in the handling of grain would say that in regard to stooking have found the well built round stook the best. Eight to ten sheaves according to size of sheaf and length of straw will set up in an even symmetrical cone shape will withstand a lot of bad weather, and if soaked with rain will dry out much more rapidly than too large a stook or one badly constructed and in consequence will not be so apt to danger from sprout. Snugly fitted caps are also a great advantage to a stook in preserving quality but it is difficult in the haste of the harvest field to get men who can, or will do this part of the work satisfactory and if the cap sheaf be not securely

(Continued on Page 59)



Practical Talks to Threshermen

Conducted by PROFESSOR P. S. ROSE.

TALK NO. IV.—A FEW BOILER DETAILS.

FLUES.—The flues are made of wrought iron or mild steel and are either lap welded or solid drawn. The steel tubes used for traction engine work are seamless, i. e., drawn and formed to the proper size and shape without being welded. Wrought iron tubes are made of a specially soft grade of iron and are welded over a mandrel. In general, steel tubes are truer to size and shape and smoother than iron, and as made at the present time are very satisfactory for traction engine work.

All boiler tubes are supposed to stand a water test of five hundred pounds to the square inch internal pressure and a section cut from the tube must stand hammering down cold, vertically, without splitting or showing any cracks or flaws. The length of these test sections vary for the different sizes of tubes, the sections being one inch long for tubes from two to two and one-half inches in diameter. The thickness of boiler tubes is expressed by the numbers of the Birmingham Wire Gauge; 12 gauge is the standard for tubes between two and two and one-half inches in diameter, although some manufacturers claim to use 11 gauge for tubes of this size, which is a little thicker.

Flues are measured externally, i. e., a two-inch flue is two inches in diameter on the outside. Steam, gas, and water pipes, on the contrary, are measured internally; for

in fact, this is another principle in correct design.

Flues are secured in the flue sheets by being expanded at the ends and then beaded over at both

difficulty experienced with leaky flues arises from just this cause.

A great many manufacturers, both of traction engines and locomotives, place a copper ferrule between the tube and tube sheet in the firebox end. When the tube is expanded, the copper being much softer, fills whatever little inequalities there are between the two surfaces and thus makes a tight joint. Furthermore, since copper expands very much more than iron for the same increase in temperature, it

great drop in temperature, probably of anywhere from 500 to 1,000 degrees, which causes the flue to shrink. Care should be taken, then, to keep the fire door closed while

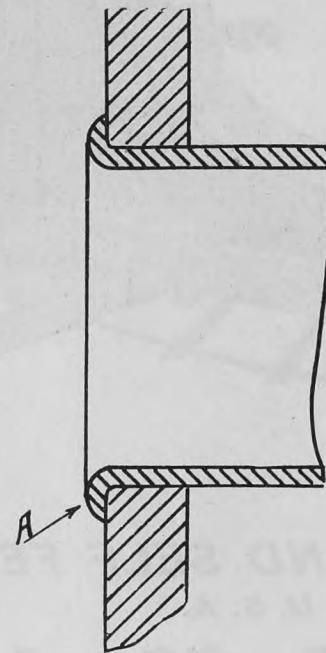


Fig. 9.

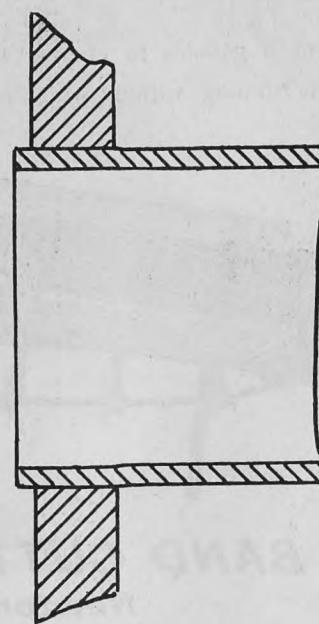


Fig. 10.

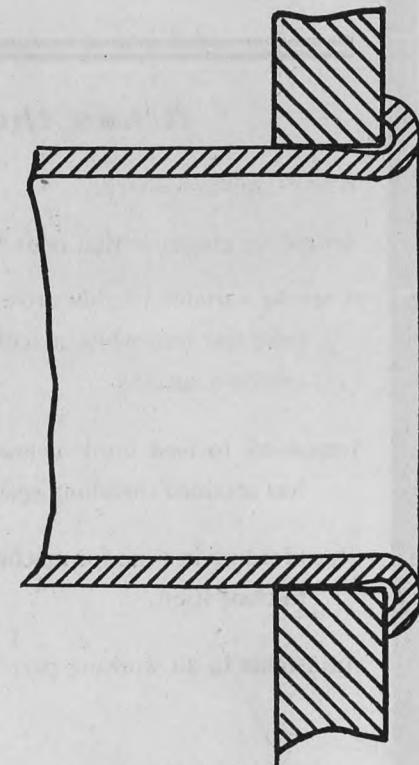


Fig. 11. Bead too large.

the engine is running and in every way possible to prevent any sudden changes in temperature.

Figures 12, 13 and 14 represent the tools used for putting in flues. Figure 12 is a beading tool, 13 a spring expander, and 14 a roller expander. Every engineer ought to have a beading tool,—which any good blacksmith can make, in his tool box. In making this, care should be taken to make the radius of curvature at A of the right size, because the size of the bead on the tubes will be dependent upon the size of the curve. Either one of the expanders will do good work. For repair work, where the holes in the flue sheet may be slightly out of round, the spring expander will probably do the best work; for new work, the roller expander is very satisfactory.

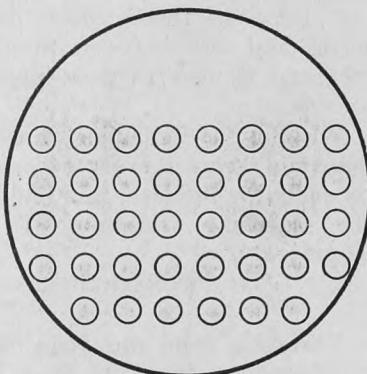
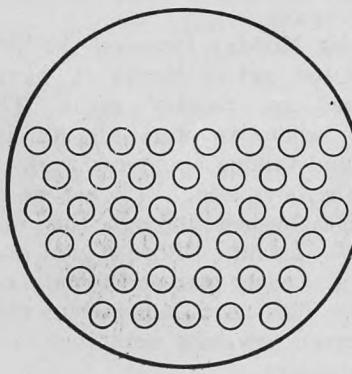


Fig. 7.



Arrangement of flues.

example, a two-inch pipe is two inches in diameter on the inside.

THE ARRANGEMENT OF FLUES.—The arrangement of flues in a boiler is an important matter, and in past years some mistakes have been made by manufacturers in arrangement. At the present time, so far as known, the arrangement of flues in direct flue boilers is in both horizontal and vertical courses, as shown in Figure 7. This arrangement is much better than shown in Figure 8, in which the flues are staggered in vertical rows. Such an arrangement impedes the circulation and does not allow the scale to drop to the bottom, while at the same time such arrangement makes the boiler very difficult to clean. It is just as essential to have good circulation in a boiler, so far as steaming qualities go, as it is to have plenty of heating surface;

many years and both have proven satisfactory in practice.

Tests made on the holding power of beaded flues and flues that are simply expanded in the flue sheets show about the same results. It would seem as though the beaded flue ought to hold a good deal more, but the tests show very little difference. Where flues are beaded care must be taken to make the bead, especially in the firebox end, as small as possible. If it is made large it is almost sure to be poorly formed, thus making a poor joint between the flue and flue sheet, as shown in Figure 11. Or, even if well formed, the large mass of metal in a big bead, being so far away from the water, does not conduct the heat rapidly to the water, and hence, is pretty sure to become burned before it has been long in use. Quite a good deal of the dif-

follows that the joint will be tighter when the boiler is steamed up than when cold. This is the reason why boiler tubes will sometimes leak when cold and be perfectly tight after the boiler is steamed up. The one objection to the use of copper ferrules is the fact that the alternate contraction and expansion of the metal finally presses the copper out of shape and makes a leaky joint.

Where the holes for the tubes are reamed perfectly true and the flue is turned to a perfect fit, so that bright surfaces come in contact, a very satisfactory joint can be made without the use of copper, but however made there is bound to be more or less difficulty with leaky flues, due to the fact that they are made of thinner material than the

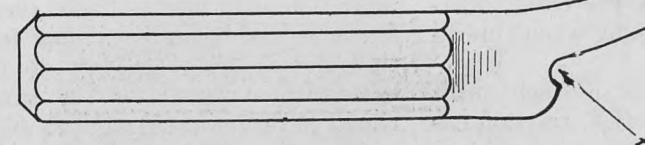


Fig. 12. Beading Tool.

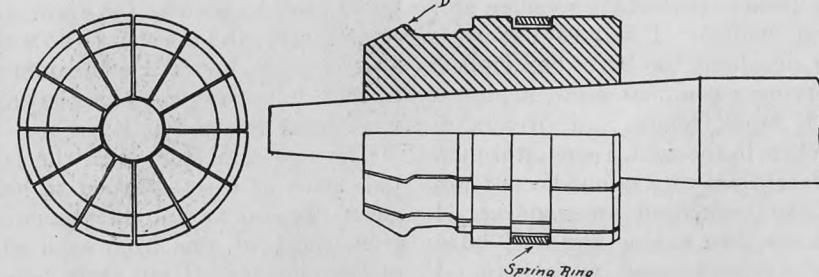


Fig. 13. Spring Expander.

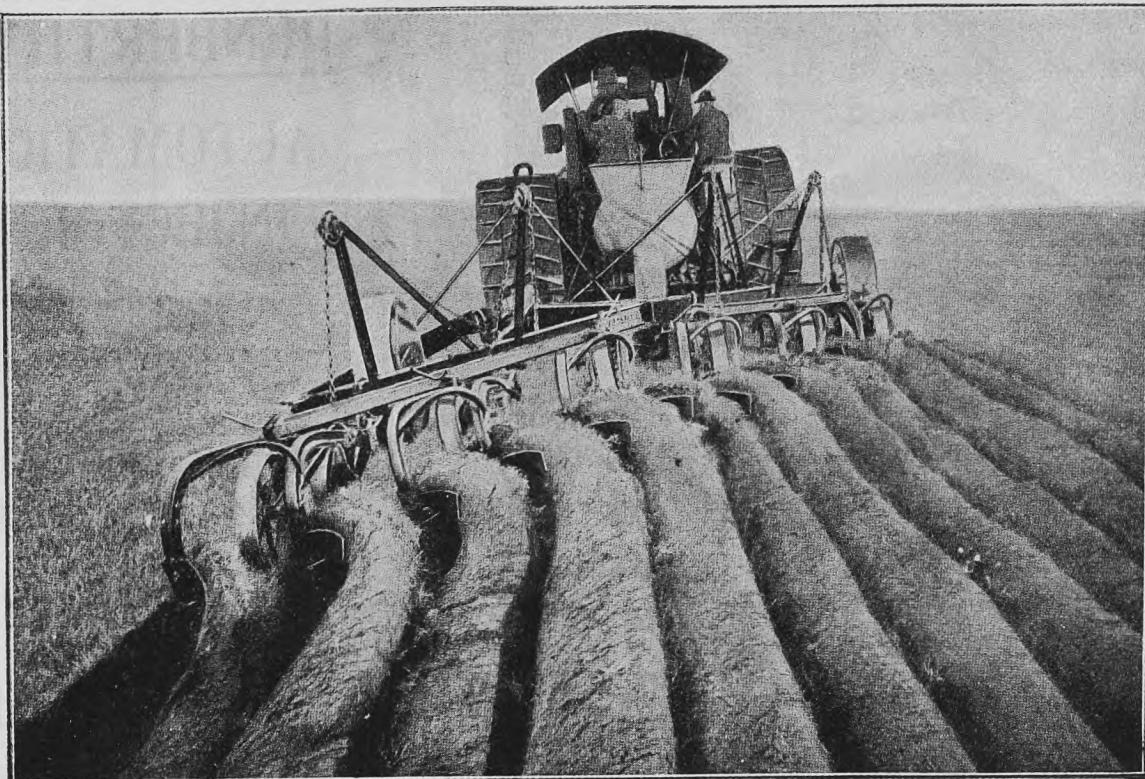
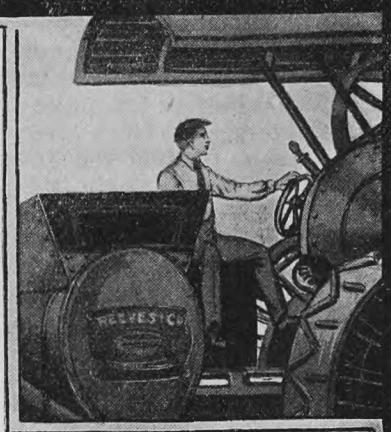
flue sheets and consequently expand and contract rapidly with sudden changes in temperature.

Whenever the fire door is opened and cold air is allowed to pass through the flues there is a very

In putting flues care should be taken, first to anneal the ends, which can be done by heating them to a bright cherry red and then allowing them to cool in slaked lime, dry ashes or dry sand. They

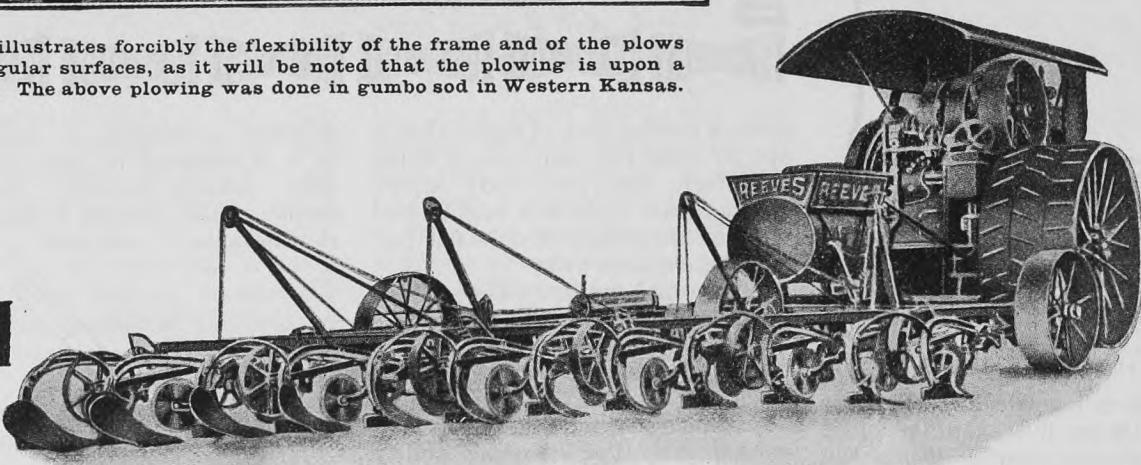


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WITH THE
REEVES FLEXIBLE FRAME STEAM
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The above rear view of REEVES Plow illustrates forcibly the flexibility of the frame and of the plows to accommodate themselves to irregular surfaces, as it will be noted that the plowing is upon a ridge depressed sharply to the left. The above plowing was done in gumbo sod in Western Kansas.

**IF
MOTHER EARTH
COULD TALK**



Rear view of the REEVES Plow, showing plows set level ready to go into the ground.

She would substantiate all we say; but our many customers, who plow with the REEVES speak for her and will tell you all about it. Their statements are positive facts, based upon actual plowing experience. We have books full of them of which we shall be glad to send you a copy upon request. Don't neglect to send for one, it contains pointers on plowing that will become very useful to you and start you on a profitable money making basis. Do not overlook to send for this book before you invest your money in a plowing outfit. Remember the old saying--"A Stitch in Time Saves Nine," save the nine and write to REEVES today.

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should be cut off square on the ends, preferably in lathe, and an allowance provided of between one-eighth and three-sixteenths of an inch at each end for beading or for projection if they are not beaded. After the tubes are in position the expander is driven in fairly tight, the taper pin is then jarred loose, the pin turned slightly, then driven in again, and this operation repeated until a tight joint is secured between the tube and tube sheet. Care should be taken not to drive the expander in too tightly, as by so doing the flue may split or the adjacent flues be caused to leak, due to a deformation of the tube sheet.

The work done by the spring expander whose operation has just been described is shown in Figure 15. The convex portion at D forms the groove shown at B in the figure. After the tubes are expanded the bead is generally started with the ball-peen of a machinist's hammer and then finished up by means of the beading tool. In using this, care should be taken that the sharp

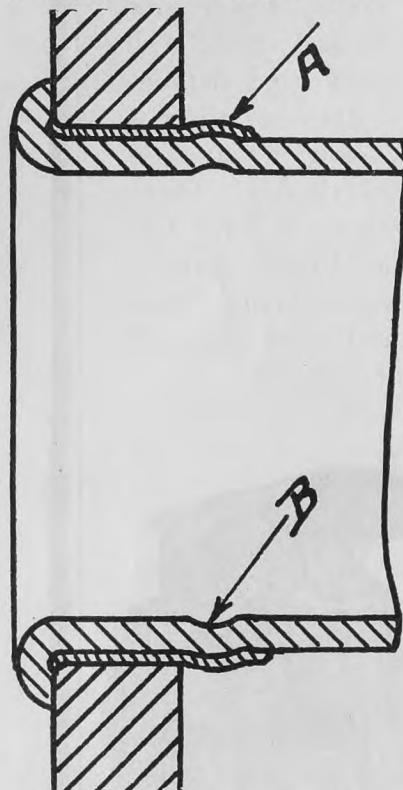


Fig. 15.
Flue with copper ferrule.

edge does not gouge into the tube sheet. Leaky flues can be cured sometimes by simply using the beading tool, and almost always by using the expander.

CALKING.—Boilers have to be calked at the joints in order to make them steam and water tight. The operation is a very simple one and can be performed by almost anybody. It consists simply in driving the edge of the upper sheet down tightly upon the lower one. A rather heavy hammer is used for this purpose and a tool having rounded edges whose appearance and method of operation is shown in Figure 16.

If a boiler leaks around a rivet head or at a seam it can generally be repaired in a few minutes' time by the use of the calking tool.

It is not safe to calk a boiler under steam pressure and it is also dangerous to use a wrench on any bolts or fittings that are screwed into any of the sheets or the boiler when it is under pressure. While the boiler may not explode, any of these parts may break off and

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MANUFACTURED BY

PENBERTHY INJECTOR CO., Limited

WINDSOR - - ONT.

cause a sudden rush of steam that is apt to scald the man who is doing the work, and everybody knows that a steam scald is a mighty bad one and something it does not pay to take chances with.

EXHAUST NOZZLES.—There is not anything more important about a traction engine boiler or a locomotive than the exhaust nozzle, for upon its construction and proper adjustment depends the draft and consequently the steaming ability of the boiler.

The ordinary exhaust nozzle consists of a special form of elbow fitted to the end of the exhaust pipe in such a way as to point exactly up the center of the chimney. The

different intensities of draft and so it is essential to have different sized exhaust nozzles. For example, straw requires a small nozzle, because it requires a heavy

amount from the working pressure.

The action of the exhaust nozzle is very simple. The rapid upward flow of steam at the base of the chimney creates a partial vacuum

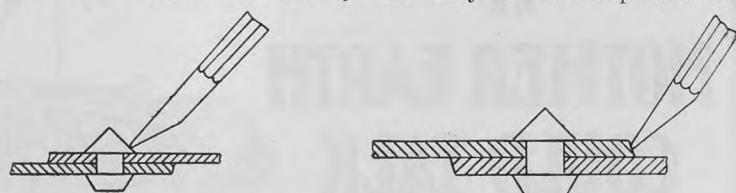


Fig. 16. Calking tool.

draft; wood, a larger nozzle, and coal, which burns with less draft, requires the largest. It is always advisable to use the largest nozzle which will furnish the requisite

at that point which in turn causes some vacuum in the smoke box and in the upper part of the chimney, thus inducing a current of air to pass through the furnace and flues. If the exhaust nozzle is not pointed directly up the center of the stack the stream of steam will strike the side of the chimney and part of it will be deflected back toward the smoke-box, thus destroying the vacuum and greatly impairing the draft.

If a boiler does not steam well one of the first things to do is to examine the exhaust nozzle and see if the proper bushing is put in for the kind of fuel used, and see that there is no lime or scale in the top of the nozzle, and make certain that it points directly up the center of the chimney. Many boilers have been condemned for not steaming well simply because the exhaust nozzle was not properly adjusted.

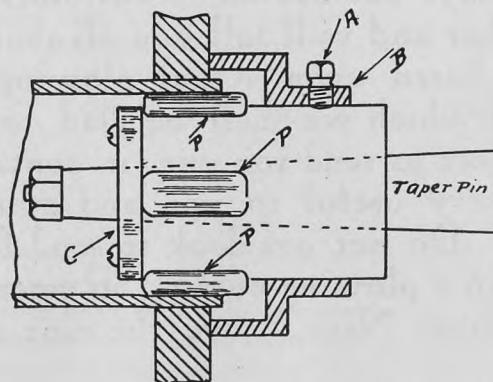


Fig. 14. Roller expander.

upper end of this elbow is provided with a bushing having an opening of the proper size for the fuel which is being burned.

Different sorts of fuel require

amount of draft, because any reduction in the size of the opening through which the exhaust must pass causes back pressure on the engine, which subtracts an equal

Dear Bill.

Are you going East this winter on the Excursions? I have decided to leave here on December 1st. by the "Alberta Express" of the Canadian Northern. They offer me a round trip ticket to Montreal for \$58.35. I used this road last year and was well satisfied, so am going again. If you are thinking of making the trip, arrange your plans so that you can leave Winnipeg on the "Winnipeg Limited" December 3rd. to St. Paul. This is one of the best trains I ever travelled on. I understand the rate from Winnipeg is only \$40.00 and tickets will be sold Dec 1st. to 31st allowing us to stopover anywhere in Eastern Canada, along the direct line. You might write to G. W. Cooper, the Assistant General Passenger Agent at Winnipeg, he is a decent sort of chap and full of information. Answer by return.

Yours loving brother
John.

Edmonton, Alta.

November 1st. 1907.

The Water Line in Steam Boilers Settled.

In our October issue the following communication was published and an answer requested:

Will Someone Please Answer ?

There is one question which I wish to ask through your paper, is this. While I was doing some repairing on an engine, there arose an argument between parties standing near, one party claimed that no boiler should be fed with water at bottom of boiler, as he claimed the pressure was greater there than at water line, his claim was that there was the weight of water as well as the steam pressure and in that case it was much harder for to get injectors to force the water into the boiler. But my claim was that there was equal pressure per square inch all over the boiler, so would like to hear someone's opinion on this matter. ARTHUR TURNER.

The following have been received since that time:

Dear Sirs:

I noticed in your October number, an enquiry regarding the proper place to have the injector feed pipe enter the boiler, and in reply will state that Mr. Turner is right.

BERT PENNYCOOK,

Virden, Man.

Winnipeg, Man.

Gentlemen:

In reply to Mr. Arthur Turner's question in No. 10, of the Canadian Thresherman, relating the steam pressure in boilers, I beg to say, that the pressure in boilers is exactly the same on every square inch of the shell, but I condemn the feeding of water into a steam boiler at the bottom, because the mud always settles at the bottom, and as the same is stirred up as soon as you turn on your injector the boiler will start to prime, which can be prevented by feeding at water line. To insure that your injector will do good work against high pressure it is necessary that two check valves being used in delivery or supply pipe.

Wishing you and all other threshermen every success, I remain,

Yours truly,

P. D. FUNK,
Chartitz, Man.

Have Your Seed Oats Tested.

Owing to the fact that extensive areas in Western Canada have been more or less frosted this season, a considerable portion of the grain is sure to be injured for seed purposes. With wheat the extent of the damage can be pretty accurately determined by appearances, but with oats it is difficult, or quite impossible, to tell by the appearance of the grain whether it has been in-

jured for seed purposes. A very slight touch of frost at the critical stage will kill the germ of the oat, but the grain may go on and develop into what looks like a first-class sample. If such grain as this is sown, the result cannot be otherwise than a partial or total failure of the crop; hence the importance of having all oats tested for germination qualities before using them for seed.

Every farmer who has oats that are pure enough for seed should have them tested for germination qualities as soon as convenient, as this is the only way to guard against sowing a sample that will not grow. Many farmers in the frosted districts will find their oats useless for seed purposes, and there is sure to be a strong demand for good, clean oats that can be guaranteed to grow. Those who have oats pure enough for seed should have them tested as soon as possible in order to allow plenty of time for selling.

For the purpose of testing for germination only a small sample is required, which will be carried through the mail free of charge if addressed to the Seed Laboratory, Department of Agriculture, Ottawa, Ont. Samples forwarded in this way will be examined and reported upon without charge to the sender. The Dominion Department of Agriculture also has a branch Seed Laboratory at Calgary, Alta., where the work will be done on the same

conditions as at Ottawa, only that postage must be paid on all samples sent to Calgary.

E. D. EDDY,

Manitoba Representative
Dominion Seed Branch.

Commenting upon the subject of the improvement of milk by giving a judicious amount of oats to cattle, one of the Danish dairy journals recommends the giving of oats in small quantities when the milk is watery, adding that about $\frac{1}{2}$ lb. or $\frac{3}{4}$ lb. would be sufficient per head per day. This, the authority in question states might be accepted with a certain amount of hesitation, had it not been proved in a definite manner by experiments that a supplementary ration of a little oats has a very favorable influence, not only upon the amount of fatty matter, but the butter made; moreover, there is an increase in the production of milk and butter in consequence. The foregoing contention is supported by an experiment which was made on ten cows, divided into two groups of five each, in such a way as to ensure that their milk received, as a supplementary ration, about 1 lb. of oats per head daily. Even as soon as the second day the favorable influence of this method was apparent, for an increased yield of milk was given, which lasted up till the tenth day. The milk was very good, having a fine nutty flavor; the butter was better, and the cattle in good condition.



FARM DEPARTMENT

The Future of the Farmer's Son.

Farm labor is getting scarcer, and the farmer's sons are still drifting cityward. This means that the farmer is not doing what he should do to offset the tendency. An evil confronts him which can be remedied only by going to the root of it. I cannot in long theories delve, nor have I the inclination; but I can comment on and tell of examples of remedies that have come to my notice which have been successful and in rare instances total failures.

Please bear with me if I say that the great mass of farmers farm slovenly. Go into their homes and one will find that traces of a slovenly farmer are to be seen and heard on every hand. There are as many different classes of farmers as of any other vocation. Good, tolerable, and slovens—divide them into one-thirds, if you like. A good farmer can be detected as soon as you come to the corner of his land. If you see a well hooked up rig driving townward, you mentally make note that he is a man who prides in his calling and does what he has to do well. On this man's reading table will be found bulletins from the experiment stations, the best farm journals, a daily paper, some live stock journals, a woman's journal or two, papers for the boys and girls of the farm, and plenty of down-to-the-hour magazines that deal in live wholesale matter.

I have a certain farmer in mind when I pen these lines and hence they must ring true. More! I have in mind a dozen others of this same class. It is not one lone man who tills the soil that I refer to. There is a whole class of him.

This man wants to know how to lighten farm labor, yet to increase the farm's productivity, two things our poor farmer never thinks of. Brains mixed into the soil is the greatest fertilizer that science has brought out into the glare of day. This man uses considerably more of this brand of soil vitalizer than his neighbors. Rotation of corn, wheat, and oats is not all that he knows of the vast field of agriculture. He knows the value of good hogs, horses, cattle, sheep, and one or two other specialties of good farming, and he uses that knowledge. Too many of us know the recipe for success but hate the toil of compounding them in the mortar.

A case in point is told by a contemporary as follows:

A certain Middle West farmer has four sons. He farms nearly 700 acres of fertile land. All these sons are to-day working with the father in finishing cattle for market and in swine breeding. Let me tell the story: One of them, the eldest, showed a fondness for horse flesh and the father bought two teams of pure bred mares of a draft breed, giving both teams into the keeping of said son. These mares were bred and fine colts raised. The son grew prouder of his charges as time flew by and gradually he worked into the breeding of heavy horses for breeding purposes. The father gave the son a chance to gain all the horse knowledge necessary to the perfect conduct of the business, and to-day it is of great importance in the revenue from the farm.

A second son wanted to learn more about beef cattle. He thought that breeding them would be a profitable work, and his father encouraged it. A few pure bred Shorthorns were kept on the place, but these were not enough. A small but select young herd of high class Shorthorns was purchased and the son given a chance to show them at the country fairs close by. A word here and there dropped by father was taken advantage of by the son. Good works on cattle breeding and feeding were secured. The best cattle journals were read weekly by father and son, and they discussed and planned together. Many a son has failed because his father has taken no interest in him. Cattle breeding in a small way in the beginning did not take the son's entire time. Naturally he began to feed "stockers" during the winter to utilize the corn grown at home. Many of these were bought, the father and son working together.

The third son took charge of the swine on the farm. He saw the need of better farrowing pens and better hogs, and the father again began working with the son. They needed many hogs to follow the steers in the feed lots. The third son raised nearly 600 pigs the past spring, all pure-bred and from high class sows. The culs were turned into the lots to follow steers and the "tops" are being sold for breeding purposes. Last season nearly \$2,000.00 worth of boars for breeding purposes and sows bred for spring litters were sold from this



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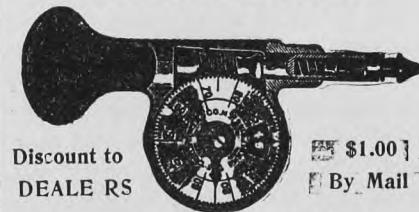
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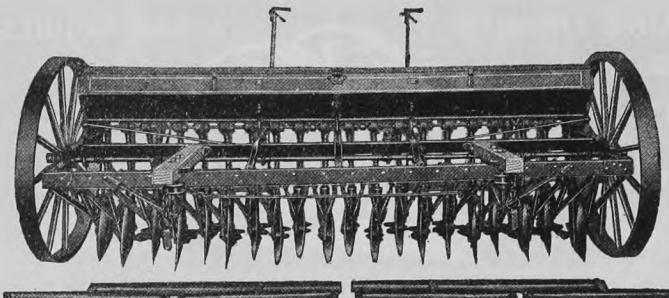
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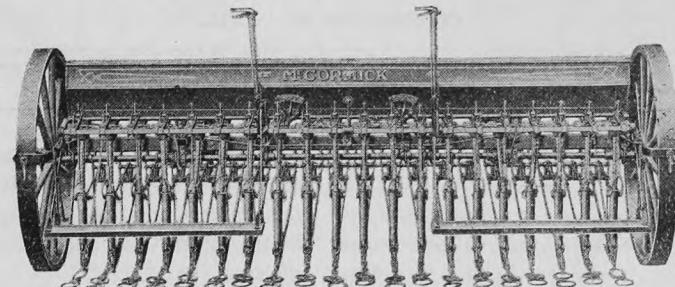
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INTERNATIONAL HARVESTER COMPANY OF AMERICA

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Chicago, - - - - -

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McCormick Shoe Drill

herd. These are facts, cold and dry, if you prefer; but they show what a father can do if he interests a son.

Son number four began the scientific study of soils and agronomy. He is now the brains of the farm regarding field crops, clovers, alfalfa, soil fertility, and agriculture in general. This son was the first to spend a short time in the state agricultural school. He received benefit from the time and money expended, and so talked the other brothers into branching out further in their learning.

Here is a farm that is operated on modern principles of scientific husbandry. All the sons are married and enjoy handsome modern homes. The father is the cause of it all; he took an interest in the sons beyond the drudgery they could perform. I have only partially outlined their work and what it has accomplished, but I have said enough to point the way.

Another farmer has one son. This man is a good farmer, but wanted his son to be a better one. He became interested in a highly specialized branch of farm husbandry, dairying, and the son was sent to school only to return to the farm and greatly benefit the business by the additional knowledge brought to it. He is now settled alongside the father on one of the best paying farms in Iowa.

Still another farmer was a clean farmer of 160 acres. His son had the benefit of good farmer's literature only, and to-day is a successful live stock breeder. This farmer saw that his boy was responsive to encouragement, and the interest he took in him was repaid many fold.

Like father, like son; this is too true. First, let the farmer do clean farming and work with an end in view. Then let him interest the son. Give one charge of some par-

ticular branch of farm work and get him interested in bettering it. Let the boy carry out good ideas. Get out of the rut. Plan for better things. Make farming interesting. The problem confronts the farmer, yet he is the only one who can solve it.

Dry Land Farming.

The important problem in dry land farming is to conserve the moisture in the soil, distributing it throughout the season of growth. The total annual precipitation is usually sufficient to grow a large crop, but some of it comes when not needed and in larger quantities than can be used and often fails to come when most needed by the crop.

The soil may be used as a vast reservoir for storing the water until it is used by the plant. By keeping the soil loose on top, we stop evaporation from the soil so that all the water may be used by the plant. In this way we save the water in the soil until it is needed by the crop.

Surface tillage is a means of trapping the rainfall. The surface soil is made loose and the capillary connection between the loose surface and the firmer and moister soil below is broken, making it more difficult for the water in the soil to reach the surface, where it is lost by evaporation.

The depth of cultivation desirable in the formation of the soil mulch will depend on the frequency of cultivation and the amount of rainfall. During a long dry period a mulch three or four inches thick is not too much.

If a crust forms on the surface, water is lost rapidly by evaporation. If a crust forms under the mulch, it prevents the circulation of air in the soil and also favors the escape of the water. This crust must be broken by deeper cultivation.

Land is summer tilled to store the moisture of one season in order that a crop may be grown the next. The more thorough the tillage, the better this moisture is conserved. When a small grain crop is being harvested, the disk should follow the binder.

The ground may be plowed later in the fall and packed with a harrow and soil packer. As soon as the frost is gone in the spring the ground should be made loose on top.

It should be kept in this condition all summer or until the next crop is seeded. The disk and harrow should be used as often as necessary to keep the surface loose.

When the ground is not plowed in the fall, it will be necessary to disk early in the spring and plow before July 15. Deep plowing increases the capacity of the soil to hold water.

If weeds are allowed to grow, the effects of summer tilling are lost. The surface should never be allowed to become hard, for this gives the same conditions as leaving a hole in the bottom of a water tank; it permits the escape of the water.

Subsurface packing is the firming of the soil beneath the mulch. This is not done to hold the moisture, but to allow the moisture to come up within reach of the plant roots—to make a road for the water to climb up, for water cannot go upward without a connected line along which to travel.

When the soil is very loose and full of air spaces the line is unjointed, but when the soil has been packed, the air spaces are squeezed out, the soil grains brought together, and a fine roadbed is made for the upward movement of the water.

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The McCormick single disk and shoe drills are in general use throughout Western Canada, where they have helped to make the Canadian Northwest the bread basket of the world. These drills are substantially constructed, and with ordinary usage will remain serviceable for many years. They are equipped with special devices to save time in making adjustments, and they will work successfully in any field where the conditions will permit a drill to be operated.

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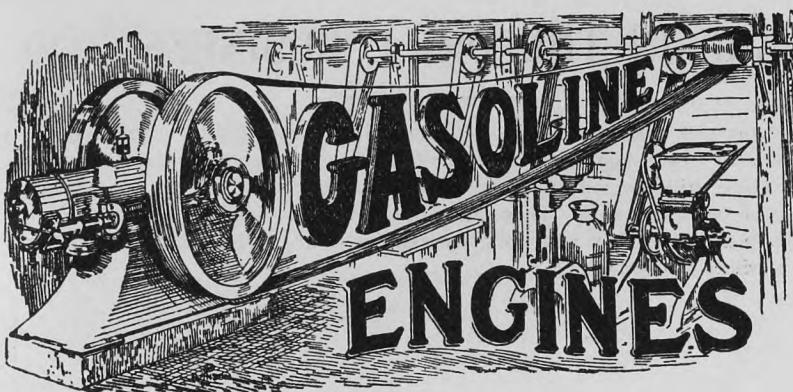
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CONDUCTED BY "BILL."

All gasoline engine owners are cordially invited to write us regarding anything pertaining to gasoline engines. If you are having success, let us know; if trouble, let us know it by all means, and we will be more than pleased to help you out of the difficulty.

Gas and Gasoline Engines.

The gas and gasoline engines (they are exactly the same except that one generates the gas it needs from gasoline, while the other takes common illuminating gas, the use of gas or gasoline being interchangeable on the same engine by readjustment of some of the parts) are operated on a principle entirely different from steam. While they are arranged very much as a steam engine, the power is given by an explosion of gas mixed with air in the cylinder. Instead of being a steady pressure like that furnished by steam, it is a sudden pressure given to one end of the piston usually once in four strokes or two revolutions, one stroke being required to draw the gasoline in, the second to compress it, the third to receive the effect of the explosion (this is the only power stroke), the fourth to push out the burned gases preparatory to admitting a new charge. The fact that force is given the cylinder at such wide intervals makes it necessary to have an extra heavy flywheel to keep the engine steady, and the double cylinder engine which can give a stroke at least every revolution is still better and is indispensable when the flywheel cannot be above a certain weight.

For small horse powers, such as are required for pumping, feed grinding, churning, etc., the gas engine is so much more convenient and so very much cheaper in operation than the small steam engine that it is safe to say that within a very few years the gas engine will have completely displaced the small steam engine. In fact, the discovery of the gas engine permits the same economies for the small engine that the progress in steam engineering has made possible for the large steam engine. As yet the gas engine has made little or no progress against the large steam plant, with its Corliss engine, its triple expansion, its condenser, and all the other appliances which are not practicable with the small engine.

COMPARISON OF STEAM AND GAS ENGINES.

The following points prepared by

an experienced farm engine manufacturer will show clearly the advantages of the gas engine over the steam engine for general use about a farm:

In the first place, the farmer uses power, as a rule, at short intervals, and also uses small power. Should he install a steam engine and wish power for an hour or two, it would be necessary for him to start a fire under the boiler and get up steam before he could start the engine. This would take at least an hour. At the end of the run he would have a good fire and good steam pressure, but no use for it, and would have to let the fire die out and the pressure run down. This involves a great waste of water, time and fuel. With a gasoline engine he is always ready and can start to work within a few minutes after he makes up his mind to do so, and he does not have to anticipate his wants in the power line for half a day. Aside from this, in some states, notably Ohio, the law compels any person operating an engine above ten horsepower to carry a steam engineer's license. This does not apply to a gasoline engine.

Again, the gasoline engine is as portable as a traction engine, and can be applied to all the uses of a traction engine and to general farm use all the rest of the year. At little expense it can be fitted up to hoist hay, to pump water, to husk and shell corn, or saw wood, and even by recent inventions to plowing. It is as good about a farm as an extra man and a team of horses.

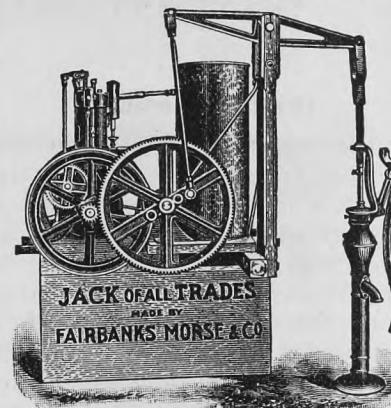
A gasoline engine can be run on a pint of gasoline per hour for each horsepower, and as soon as the work is done there is no more consumption of fuel and the engine can be left without fear, except for draining off the water in the water jacket in cold weather. A steam engine for farm use would require at least four pounds of coal per horsepower per hour, and in the majority of cases it would be twice that, taking into consideration the amount of fuel necessary to start the fire and that left unburned after the farmer's through with his power. If you know the cost of crude gasoline at your point and the cost of coal, you can easily figure the exact economy of a gasoline engine for

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your use. To the economy of fuel question may be added the labor or cost of pumping or hauling water.

The only point wherein a farmer might find it advantageous to have a steam plant would be where he is running a dairy and wished steam and hot water for cleansing his creamery machinery. This can be largely overcome by using the water from the jackets which can be kept at a temperature of about 175 degrees, and if a higher temperature is needed he can heat it with the exhaust from the engine. The time will certainly come soon when no farmer will consider himself up-to-date until he has a gasoline engine.

Some persons unaccustomed to gasoline may wonder if a gasoline engine is as safe as a steam engine. The fact is, they are very much safer, and do not require a skilled engineer to run them. The gasoline tank is usually placed outside the building, where the danger from an explosion is reduced to a minimum. The only danger that may be encountered is in starting the engine, filling the supply tank when a burner near at hand is in flame, etc. Once a gasoline engine is started and is supplied with gasoline, it may be left entirely alone without care for hours at a time without danger and without adjustment.

With a steam engine there is always danger, unless a highly skilled man is watching the engine every moment. If the water gets a little low he is liable to have an explosion; if it gets a little too high he may knock out a cylinder head in his engine; the fire must be fed every few minutes; the grates cleaned. There is always something to be done about a steam engine.

So here is another point of great saving in a gasoline engine, namely, the saving of one man's time. The man who runs the gasoline engine may give nearly all his time to other work, such as feeding a corn-sheller, a fodder chopper, or the like.

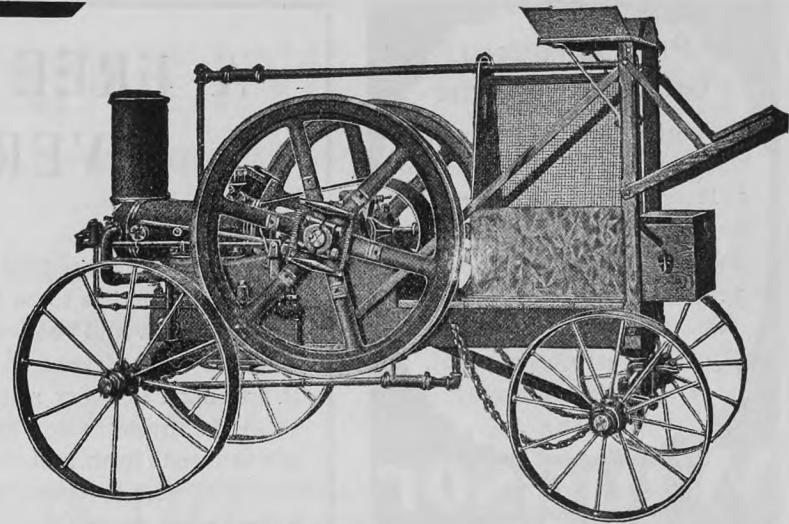
Kerosene may also be used in the same way with a special type of gas engine.

The amounts of fuel required of the different kinds possible in a gas engine are compared as follows by Roper:

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Besides the above mentioned engine, the line includes stationary vertical 2 and 3-horse power, and horizontal stationary and portable 4, 6, 8, 10, 12, 15 and 20-horse power, also sawing and pumping outfits and jacks, a 1-horse power air cooled engine, and 10, 12, 15 and 20-horse power traction gasoline engines.

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DESCRIPTION OF THE GAS OR GAS- OLINE ENGINE.

The gas engine consists of a cylinder and piston, piston rod, cross-head, connecting rod, crank and flywheel, very similar to those used in the steam engine.

There is a gas valve, an exhaust valve, and in connection with the gas valve a self-acting air valve. The gas valve and the exhaust valve are operated by lever arm or cam worked from the main shaft, arranged by spiral gear or the like so that it gets one movement for each two revolutions of the main shaft. Such an engine is called "four cycle" (meaning one power

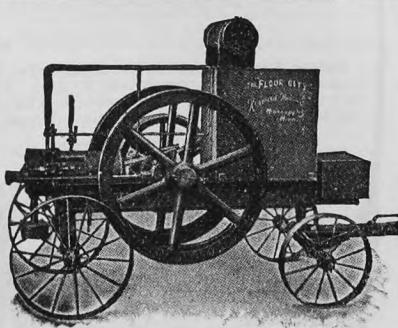
stroke to each four strokes of the piston), and works as follows:

As the piston moves forward the air and fuel valves are simultaneously opened and closed, starting to open just as the piston starts forward and closing just as the piston completes its forward stroke. Gas and air are simultaneously sucked into the cylinder by this movement. As the cylinder returns it compresses the charge taken in during the forward stroke until it again reaches back center. The mixture in the Otto engine is compressed to about 70 pounds per square inch. Ignition then takes place, causing the mixture to explode and giving the force from which the power is derived. As the crank again reaches its forward center the piston uncovers a port which allows the greater part of the burnt gases to escape. As the piston comes back, the exhaust valve is opened, enabling the piston to sweep out the remainder of the burnt

gases. By the time the crank is on the back center the exhaust valve is closed and the engine is ready to take another charge, having completed two revolutions or four strokes. The side shaft which performs the functions of opening and closing the valves, getting its motion in the Columbus engine by a pair of spiral gears, makes but one revolution to two of the crank shaft.

Gas engines are governed in various ways. One method is to attach a ball governor similar to the Waters on the steam engine. When the speed is too high, the balls go out, and a valve is closed or partly closed, cutting off the fuel supply. Since the engine takes in fuel only once in four strokes, the governing cannot be so close as on the steam engine, since longer time must elapse before the governor can act.

Another type of governor operates by opening the exhaust port and holding it open. The piston



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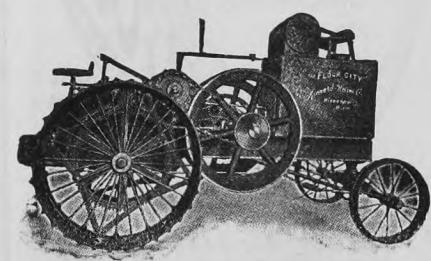
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It has occurred to us that scattered about among the farmers of Canada, there is to be found a fund of information regarding agriculture that would be invaluable if gotten together. It is information that has been gleaned in the hard but sure field of experience and is first-hand in every respect. It is just such information as would be of the utmost value to farmers as a whole, providing it could be put into such form that all may glean therefrom.

With this in mind we have decided upon a most liberal plan, whereby we can get this information for general distribution through the columns of our magazine and at the same time pay the contributors well for their trouble.

Below will be found a list of books covering a wide range of subjects, well printed on good paper and neatly bound in cloth and ranging in price from 50 cents to \$3.00. Many of them are recognized as standard text books in their particular field.

We will give to each contributor of our magazine, who writes us a letter upon some topic of interest and which is suitable for publication, a choice of any of the books listed. Each and every farmer has at his disposal enough first-hand information to secure the whole library. But you say, I am not a writer for that is not my business. True, perhaps, but you have the facts gleaned in your everyday work and with these, told in your own words, we can easily fix up the library end of the matter. Tell it to us just as if you were sitting at your own fireside with the editor of this magazine as your guest and you were relating to him your experiences regarding certain things. Any subject pertaining to farm life is eligible. Methods of plowing, seeding, harvesting, handling of grain, handling and care of stock, farm machines, new ideas and helps, etc., etc., in fact it would be impossible for us to attempt to give the range of subjects that can be covered.

Don't make your remarks too long, but just tell the story in your own words. This is an excellent chance for every farmer to review his own ideas and at the same time be well paid for his trouble.

Who'll be the first to contribute? We want hundreds of farmers to co-operate with us in this plan of information distribution and we'll gladly pay you liberally for your trouble. Make your selections from the list below when you send in your letter and we'll forward the book immediately, providing we can use your reply.

ORDER BY NO. AND TITLE

1. Standard Encyclopedia of Receipts.—By Chas. W. Dana.
2. McClure's American Horse, Cattle and Sheep Doctor.—By Robt. McClure, M.W.V.S.
3. Practical Telephone Hand Book and Guide to Telephone Exchange.—By I. S. Baldwin, M.E.
4. Steam Boilers, Their Construction, Care and Operation.—By C. F. Swingle, W.E.
5. The Calculation of Horse Power Made Easy.—By L. Elliot Brookes.
6. Cyclopedias of Painting.—By George D. Armstrong.
7. Correct Horseshoeing.—By J. G. Holmstrom.
8. Hodgson's Low Cast Homes.—By Fred T. Hodgson.
9. Concretes, Cements, Mortars, Plasters and Stuccos.—By Fred T. Hodgson.
10. The Practical Gas and Oil Engine. Hand Book.—By L. Elliot Brookes.
11. Elementary Chemistry Self Taught.—By H. E. Roscoe.
12. Boat Building for Amateurs.—By Adrian Nelson, C.E.
13. Book-keeping Self Taught.—By Philip C. Goodwin.
14. Felt's Parliamentary Procedure.—By Orson B. Felt.
15. Guide to Successful Auctioneering.—By Charles T. Johnson.
16. Standard Perfection Poultry Book.—By C. C. Shoemaker.
17. Photography Self Taught.—By T. S. Baldwin.
18. Hodgson's Modern House Building.—By Fred T. Hodgson.
19. Irish Wit and Humor—Compiled from various sources.
20. Conundrums and Riddles—Collected and Arranged by John Roy.
21. Chas. K. Harris' Complete Songster.
22. Book of Card Tricks.—By A. Reterbury.
23. Painters and Paper Hangers Manual.—By A. L. McLuse.
24. Bryant's Commercial Business Guide or How to Do Business.—By C. M. Bryant, P.H.D.
25. How to Make \$500 yearly profit with 12 hens.—By A. Corbett.
26. Gleason's Horse Training Made Easy.—By O. H. Gleason, V.S.
27. Telegraphy and How to Learn It.
28. A. B. C. Guide to Music.—By Joseph Booth.
29. Twentieth Century Cook Book.

Other Titles will be added from time to time.



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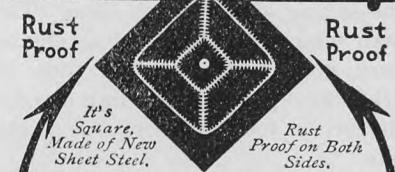
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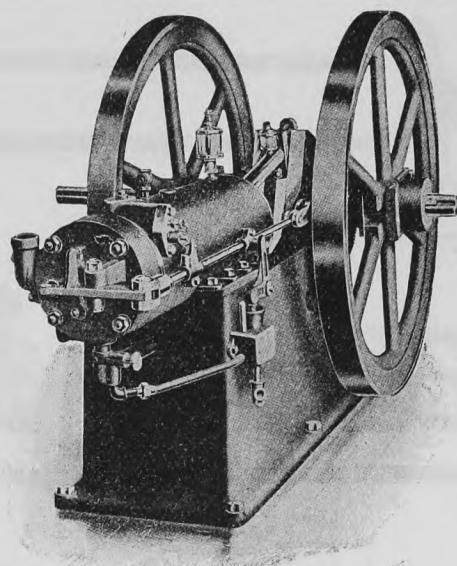
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then merely draws in air through the exhaust port, but no gas. This is called the "hit or miss" governing type. One power stroke is missed completely.

The heat caused by the explosion within the cylinder is very great, some say as high as 3,000 degrees. Such a heat would soon destroy the oil used to lubricate the cylinder and make the piston cut, as well as destroying the piston packing. To keep this heat down the cylinder is provided with a water jacket, and a current of water is kept circulating around it to cool it off.

When gas is used, the gas is passed through a rubber bag, which helps to make the supply even. It is admitted to the engine by a valve similar to the throttle valve on an engine.

Gasoline is turned on by a similar valve or throttle. It does not have to be gasefied, but is sucked into the cylinder in the form of a spray. As soon as the engine is started, the high heat of the cylinder caused by the constant explosions readily turns the gasoline to gas as it enters. The supply tank of gasoline is placed outside the building, or at a distance, and stands at a point below the feed. A small pump pumps it up to a small box or feed tank, which has an overflow pipe to conduct any superfluous gasoline back to the supply tank. In the gasoline box or feed tank a conical-shaped basin is filled with gasoline to a certain height, which can be regulated. Whatever this conical basin contains is sucked into the cylinder with the air. By regulating the amount in the basin the supply of gasoline in the cylinder can be regulated to the amount required for any given amount of work. In the Columbus engine this regulation is accomplished by screwing the overflow regulator up or down.

There are two methods of igniting the charge in the cylinder in order to explode it. One is by what is called a gasoline or gas torch. A hollow pin or pipe is fixed in the top of the cylinder. The upper part of this pin or pipe runs up into a gasoline or gas lamp of the Bunsen type where it is heated red hot.

When the gas and air in the cylinder are compressed by the back stroke of the piston, some of the mixture is forced up into this pipe or tube until it comes in contact with the heated portion and is exploded, together with the rest of the charge in the cylinder. Of course this tube becomes filled with burnt gases which must be compressed before the explosive mixture can reach the heated portion, and no explosion is theoretically possible until the piston causes compression to the full capacity of the cylinder. The length of the tube must therefore be nicely regulated to the requirements of the particular engine used.

The other method is by an electric spark from a battery. Two electrodes of platinum or some similar substance are placed in the compression end of the cylinder. The spark might be caused by bringing the electrodes sufficiently near together at just the right moment, but the more practical and usual way is to break the current, closing it sharply by means of a lever worked by the gearing at just the moment the piston is ready to return after compressing the charge. The electric spark is by long odds the most desirable method of ignition, being safer and easier to take care of, but it requires some knowledge of electricity and electric connection to keep it always in working order.

OPERATION OF GAS AND GASOLINE ENGINES.

To all intents and purposes the operation of a gas or gasoline engine is the same as that of a steam engine with the care of the boiler eliminated. The care of the engine itself is practically the same, though the bearings are relatively larger in a gasoline or gas engine and do not require adjustment so often. Some

manufacturers will tell you that a gas engine requires no attention at all. Any one who went on that theory would soon ruin his engine. To keep a gasoline engine in working order so as to get the best service from it and make it last as long as possible, you should give it the best of care.

An engine of this kind needs just as much oiling and cleaning as a steam engine. All bearings must be lubricated and kept free from dirt, great care must be taken that the piston and cylinder are well lubricated. In addition, the engineer must see that the valves all work perfectly tight, and when they leak in any way they must be taken out and cleaned. Usually the valve seats are cast separate from the cylinder, so that they can be removed and ground when they have worn.

Also the water jacket must be kept in order so that the cylinder cannot become too hot.

STARTING A GASOLINE ENGINE.

It is something of a trick to get a gasoline or gas engine started—especially a gasoline engine—and some skill must be developed in this or there will be trouble. This arises from the fact that when an engine has not been running the cylinder is cold and does not readily gasefy the gasoline. At best only a part of a charge of gasoline can be gasefied, and if the cylinder is very cold indeed the charge will not explode at all till the cylinder is warmed up.

When preparing to start an engine, first see that the nuts or studs holding cylinder head to cylinder are tight, as the heating and cooling of the cylinder are liable to loosen them. Then oil all bearings with a hand oil can, and carefully wipe off all outside grease.

When all is ready, work the gasoline pump to get the air out of the feed pipes and fill the reservoir.

First, the engine must be turned so that the piston is as far back as it will go, and to prevent air being pressed back the exhaust must be held open, or a cock in priming cup on top of cylinder opened.

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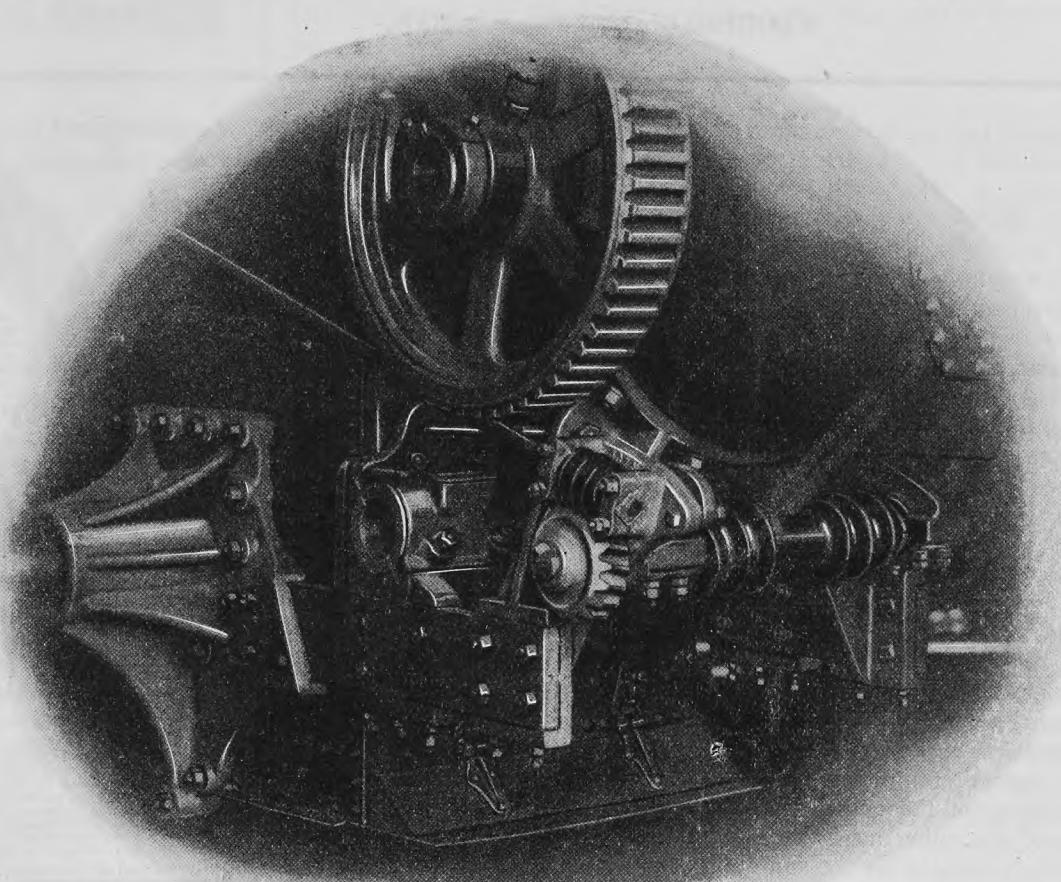


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(Continued in our next issue.)



Let us Talk it



View of Counter Shaft Bracket and Section of Gearing

Our fire box is of the open bottom pattern which is generally acknowledged to be the best adapted to this northern climate. Only the very best quality of heavy fire-box steel is used, and all portions are stayed with stay bolts and braces to withstand high pressures.

The principal fuel in this Western country is straw. We have therefore designed our straw burning boiler so as to give the greatest amount of heat from this particular fuel. The air enters at the rear of the fire-box and then passes through the grates, which gives you the only correct method of straw burning, namely, against the feed, not with it. The principle of this may be proved by lighting two matches and letting one burn with the flame held up and the other with the flame held down, and observe the difference. A perfect air chamber is so arranged that the oxygen and carbon, which have so great a chemical affinity for each other, are mingled together, and by the force of their combustion produce intense heat in the combustion chamber, making a fierce fire and consuming all particles of straw that may get into the combustion chamber, thus preventing the clogging of the rear ends of the flues, which would necessitate frequent cleaning out and exposure to cold air. All our straw burning boilers are so arranged that by putting in suitable grates they will burn coal or wood readily.

So much for the boiler. Any thresherman who has had considerable experience with a traction engine, knows that the most important part about the engine itself is the engine frame and cylinder. With this in mind we have constructed the engine frame and cylinder used on the American-Abell traction engine, so as to meet all emergencies. They are separate castings. The counter bore of the cylinder fitting on a corresponding projection on the frame, and the flanges are faced square with the bore of each, making it impossible for them to get out of line with each other. This insures perfect rigidity of all of the parts. The cylinder itself is bored true to a gauge and with proper lubrication and attention to the piston one will never be bothered with steam blowing past the piston.

Our crosshead is made of cast iron and amply large; it and the shoes being planed to fit perfectly. The shoes are made of extra width and length, having ample bearing surface, and are fastened to the crosshead in a manner that provides an easy method of taking up any wear, and yet are devoid of lock nuts and other parts to work loose and give annoyance.

The connecting rod, piston, and all parts pertaining thereto are made of special forged steel and sufficiently strong to withstand any and all strains.

The traction part of the traction engine is, in these days of steam plowing and road hauling, of no less importance than the engine and boiler. The American-Abell road wheel is constructed of steel of the latest design, built for strength and efficiency. The spokes are of flat steel and the gearing is so

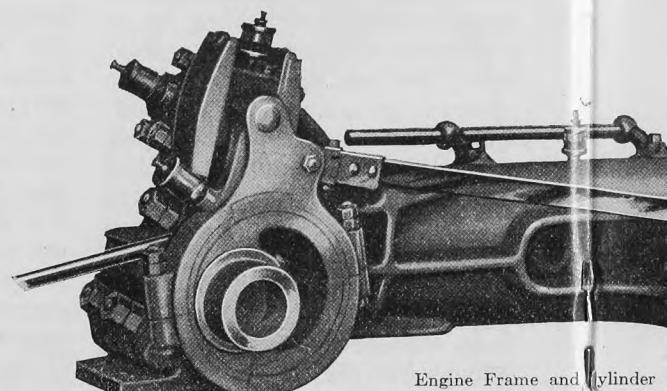


HE man who buys a traction engine to day buys getting therefrom the greatest amount of power and water and at the same time conserve the possible of course to construct a traction engine it would run like a clock and the amount of quiet to a minimum, but on the other hand it is quiet would be constructed along lines that would manufacturer could afford to build it nor could it. It would be little more than an expensive would fall down in actual practice. The traction to meet with the popular demand and give value received, the number of wearing parts reduced to a minimum and ease strength to do its required work. Powerful on the belt and the whole engine well balanced and symmetrical.

Years of experience in the shop and in the field have of American-Abell engines to embody all of the above points is simplicity in itself. Its working parts are few and usage and neglect to which the average traction engine is subject has been attained, none of the strength, durability, efficiency been sacrificed. A glance at the illustrations on these pages will parts required for the immediate use of the operator and the engineer may guide and control his engine without letting by frequently enabling him to avoid accidents which would be a more complicated type or less convenient in the arrangement.

When a man builds a house the first thing that comes must be built up on good solid rock and not upon shifting sand a house the boiler is to the traction engine, and unless this boiler ground work for the machinery mounted upon it, that traction is limited. The American-Abell boilers are of the locomotive type successfully withstand the severe strain to which a traction engine is subject. This type is considered superior to traction engines with the of its longer life and greater safety and strength. We realize to build some other types of boilers, but we furthermore realize that it is false economy to mount an engine on a poor boiler. We therefore make our boilers fulfil all requirements that may be high grade Open Hearth Steel of 60,000 pounds tensile strength. All horizontal seams are double riveted. We build our boilers service, and from the many testimonials now on file in our American-Abell boilers, we feel perfectly satisfied that our efforts have been successful.

Only the best seamless cold drawn steel tubes are used and as there are no welds to weaken them, they are the strongest made. They are arranged in such a manner that absolute safety is assured, and the dimensions are sufficient to give ample heat and easy steaming.



Engine Frame and Cylinder



American-Abell
TORONTO

Engine and

WINNI

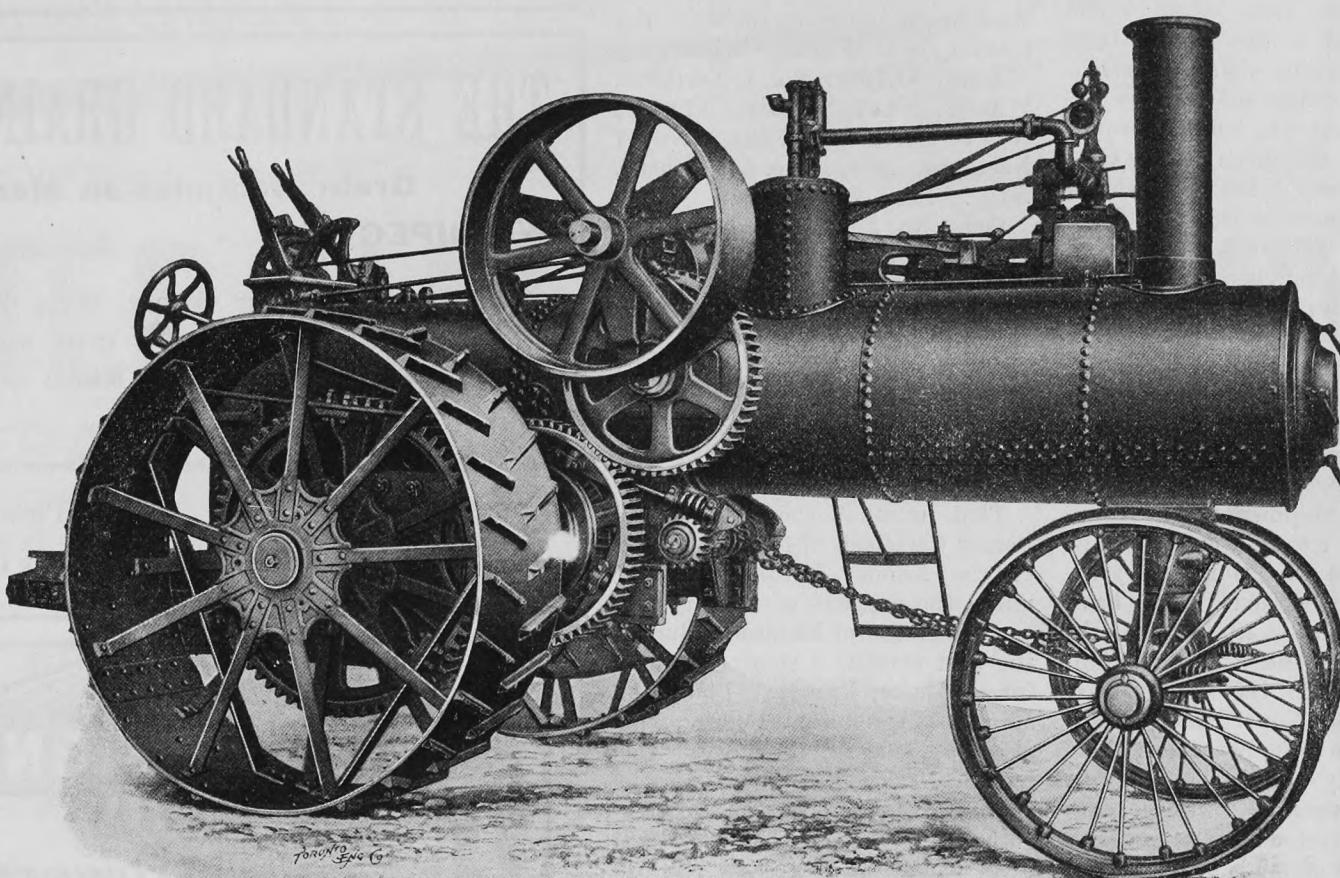


Put over Together

ine to day buys it with the one idea, namely, amount of power with the least amount of fuel to conserve the life of his engine. It would be a traction engine so fine and so complete that the amount of fuel and water would be reduced to a minimum. In this hand it is quite likely that that same engine would be so expensive that neither the man could afford to buy it nor could the thresherman afford to buy it. The traction engine of to-day, in order to have value received, must be simple in construction, minimum and each part of sufficient weight and on the belt and on the road, easy to steam, and economical.

In the field have enabled designers and builders to take the above points in their machines. Our engines are few and are built to withstand the hard usage. The traction engine is subjected, and while simplicity, economy, efficiency or form of the engine has not been mentioned on these pages will show you that all the work of the operator are located in such a manner that he without letting go of the throttle lever, there will be no chance which would be sure to occur with engines of this type in the arrangement of the controlling devices. The thing that concerns him is the foundation. It is upon filtering sand. What a foundation is to a house, unless this boiler be such as to form a perfect foundation, that traction engine's life will surely be short. The locomotive type and are designed so as to withstand the rough usage and sudden strains to which a traction engine boiler is subjected. Engines with the return flue boiler, on account of their weight. We realize conclusively that it is cheaper to buy a traction engine than to buy a traction engine with a poor boiler. We do not spare any expense that may be put upon them, and only the best materials are used in their manufacture. We build our boilers with the one idea of giving them a long life. We have a record of 10 years on file in our offices from users of the American-Abell traction engines. Our efforts have been rewarded.

Steel tubes are used in the American-Abell boilers, and they are the strongest and most uniform flues ever made. The absolute free circulation of water is guaranteed to give ample heating surface, thus insuring quick



Right Hand View, 26 h.p. Simple Traction Engine

attached that the strain of the load is easily distributed. It is large enough in diameter to overcome the point of resistance and give a good gripping contact with the ground, and of sufficient width to carry the engine over soft places. Road wheel extensions are also provided with all our engines when so desired, at a slight additional cost.

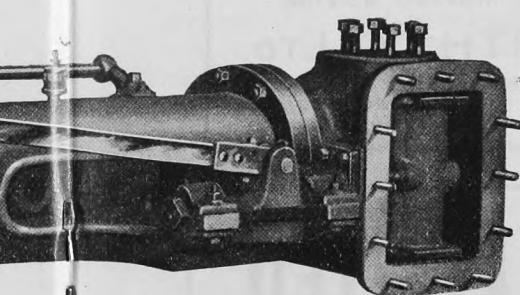
The gearing of a traction engine, especially those of larger sizes, is subjected to very heavy strains and must of necessity be well constructed and designed, it is therefore important that it be accurate to insure the teeth meshing perfectly, and to prevent their cutting or grinding out, and of sufficient strength to withstand the rough usage and sudden strains to which it may be put. Our gears are of the very best material and in proportion to the work required of them. They are so arranged on the boiler that we overcome the necessity of putting studs in the throat sheet, also any studs in the boiler in connection with the counter shaft are always in tension whether the engine be going forward or backward, thus doing away with any shearing strain upon them when the engine is reversed.

Our road axle is made of a hollow piece of steel and has proved to be a grand success. It gives more strength and wearing surface than with a solid axle of corresponding weight. All our traction gearing is sufficiently covered and shielded to prevent dirt and dust getting in when the engine is on the road or plowing in the dusty field.

The American-Abell Compound Traction Engine is designed specially for Manitoba and the Northwest. It is built upon our straw burning boiler, which is constructed to carry high steam pressure and is tested to 320 pounds cold water test. On this engine is to be found a device for drying the exhaust steam from the high pressure cylinder before entering into the low pressure cylinder, this device is known as a reheater. The exhaust steam coming from the high pressure cylinder is made to pass into this reheater which is placed in the smoke box, and any wet particles of steam remaining are again evaporated insuring dry steam at all times in the low pressure cylinder. This device which is the means of saving at least thirty per cent. of fuel and water is secured to us by letters patent and is to be found in no other compound traction engine.

An interlocking valve is also provided whereby the cross compound can be turned into a double cylinder engine thus giving an increased amount of power when an emergency calls for it.

The finish and style of the American-Abell Traction Engine is such as to recommend it to every lover and user of steam machinery. The designers of American-Abell engines have been extremely careful in detail. Every part is thoroughly finished, tested and examined by expert workmen before it leaves the factory, thus insuring the purchaser an engine free from defects and weak parts. Each engine is carefully painted and striped, and anyone who purchases an American-Abell need not have any fear of putting it up as the best. We would be glad to tell you more about our traction engines but space will not permit, we therefore request that, if you are at all interested, you write for our large illustrated catalogue which fully describes American-Abell Threshing Machinery.



Boiler and cylinder

least thirty per cent. of fuel and water is secured to us by letters patent and is to be found in no other compound traction engine.

An interlocking valve is also provided whereby the cross compound can be turned into a double cylinder engine thus giving an increased amount of power when an emergency calls for it.

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WINNIPEG REGINA



Wheat Situation.

Winnipeg, Man., Oct. 26th, 1907.

During the month the world's grain situation has undoubtedly grown stronger in so far as conditions which combine to make prices are concerned. The farther we go into the season, the more apparent it becomes that the crop of practically every producing country of any importance, is materially short both in quantity and quality as compared with last year, and not only are some of the principal European countries short on this year's crop, but the weather of the past month has been dry and unfavorable for the seeding of their winter wheat areas which would indicate that in this respect their next season's crop will also be short. That these conditions are now established facts is amply proven we think by the fact that the Continent has been a heavy purchaser of wheat almost every day for a month past and still continues to make liberal purchases, and, that North America is at this time, and will be for some months yet, the chief source of supply is also strongly indicated by the fact that notwithstanding the high prices offered, shipments from all other countries have remained exceeding small, while shipments from America now run away in excess of the shipments at this time last year. Already the United States have shipped out almost 20,000,000 bushels more wheat since July 1st than they shipped in the same period last year and North America still continues to supply almost half of the weekly world's shipments to importing countries. However, during the last week or ten days wheat prices have suffered a rather severe decline which has been brought about by the heavy slump in the stock market in New York, and the consequent tying up of ready cash and general tightening of the financial situation, many men who had large amounts of money invested in grain, especially wheat, which they needed to protect their business interests in other directions, threw their wheat upon the market

regardless of price in order to realize upon it quickly, and this practically wholesale damping of wheat by some, scared other financially weaker men who also sold out, and as a result prices dropped very quickly. However, latest indications point to the clearing of the financial situation, and with the restoration of confidence in values generally in commercial and industrial business projects attention will again be turned to the legitimate side of the grain situation and prices will undoubtedly respond very quickly to any pronounced buying.

The demand for cash wheat which has been a little dull during the last couple of days shows considerable improvement to-day. Prices for the different grades on the Winnipeg market are as follows:—Wheat, No. 1 Hard, \$1.10 $\frac{1}{4}$, No. 1 Northern, \$1.09 $\frac{3}{4}$, No. 2 Northern, \$1.06 $\frac{3}{4}$, No. 3 Northern, \$1.02 $\frac{1}{4}$, No. 4 Northern, .97 $\frac{1}{2}$, No. 5 Northern, .84 $\frac{1}{2}$. Feed .74.

Oats, No. 2 White, .59 $\frac{1}{4}$, No. 3 White, .50, Barley, No. 3, .71, No. 4, .61. Rejected, 59 $\frac{3}{4}$, Flax, No. 1 N. W. Man., \$1.27. In store Fort William and Port Arthur.

Work of Agricultural Societies in Manitoba.

That unusual success has attended the efforts of those in charge of the Annual Exhibitions held under the auspices of the Agricultural Societies of Manitoba, during the past season, is shown by data furnished by Principal Black, of Manitoba Agricultural College, who also is managing director of the societies. The last show of the year was held at Selkirk, on October 10th.

As usual the tendency was to summer shows. The list this year shows that about seventy-five per cent. took advantage of the slack season and held their exhibitions in the summer weeks. At a few places such as Kildonan and St. Pauls, local conditions demanded the fall show. According to the managing director a large percentage of the fairs took advantage of the offer made by the Department

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of Agricultural Societies, to provide judges for the various departments at each show. At nearly every point the local management co-operated with the department in the matter of ensuring an impartial and efficient judge. In live stock judges were supplied at forty-two points, and in dairy products at twenty-four. This season also found a demand for expert judges of field roots and garden products. From the view point of the dairy enthusiast it is most encouraging to note that college judges at three times as many points as on any previous year.

Vast improvements have been made at several places. In classification of stock and in general quality of exhibits has the advancement been most noteworthy. Changes made during the past three years are such that the exhibitions would not now be recognized as being under the same auspices. Among those that have made encourag-

ing strides are Carberry, Virden, Deloraine, Morden and St. Pierre, and there are others. Several prize lists have been revised with assistance and suggestions from the managing director.

The college extension work undertaken during the early summer also met with success. Owing to the lateness of seeding, farmers were exceptionally busy and the result was a small attendance at a few points. The interest and enthusiasm prevailing however, showed that farmers were more alive to the value of such work than ever was demonstrated at a similar campaign in the Province.

A significant feature of the work in connection with Agricultural Societies for 1907, has been the manifest appreciation of local directorates in the assistance given by the managing director. Many have not hesitated to say that great improvements have been due to the fact that competent judges held

the confidence of exhibitors. The prevailing opinion is that having the Department of Agricultural Societies at the Manitoba Agricultural College with the principal and his staff directing and assisting in the work as a Board of Directors, is a material benefit. The new system promises to give better results than any system in vogue where Agricultural Societies exist.

What and When to Read.

If people pelt you with hard words, read John xv.

If you are down with the blues, read Psalm xxvii.

If you feel lonesome and unprotected, read Psalm xci.

If there is a chilly sensation about the heart, read Rev. iii.

If you find yourself losing confidence in men, read i Cor. xiii.

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The Possibilities in Farm Cows.

There are few farmers who do not keep one or more cows on the farm, some to make butter for market, and many simply for the purpose of supplying milk and butter for the family table. There are few, however, that realize the possibilities in this factor in modern farming. The Farmers' Review, in a recent issue published a most interesting article on the question of farm cows. We reproduce it as follows:

The ordinary farmer that keeps a few cows is not a dairyman, in the common acceptation of the term. He does not make dairying a part of his farm work to the extent of adopting a regular method of marketing the products. He keeps cows primarily for his own use and to supply the butter, milk and veal that his family needs. He sells the surplus merely for the sake of not wasting it. Naturally he does not take much account of what his cows eat or of what they produce. He keeps three or four cows, so that he may have at least two cows always giving milk, for he expects to use at least the milk of two cows, when he considers the demands of his family for butter and the demands of his pigs for sour milk. In determining how many cows he shall keep he fixes the number at the figure that will give him and his family dairy products always in abundance even in mid-winter when the cows have to be fed on dry hay and little else. It is no surprise to him to have a great surplus in June when the pastures are good. At that time all the other farmers that are situated as he is also have a surplus of dairy products, and these thrown on the market constitute the reason for the low prices of dairy products in June. When he began to keep cows he intended to have them come in fresh at different times, possibly one every three months. The course of nature was against his plans, and rather than make a fight to establish his plan he let Nature establish her plan which is to have all the calves come in the spring just before the pastures become luxuriant, so that they might find rich and succulent

herbage for their use immediately after being weaned. This is good for the calves but bad for the man that wants to have a steady milk supply throughout the year and be able to sell his surplus butter in the winter when prices are high as well as in the summer when prices are low. Also with his original plan carried out he would be able to have a good supply of milk for the pigs in winter when they most need it on account of not having access to rich June pastures. The farmer that thus permits Nature to drive him into her method of doing things has to give up the raising of fall pigs, for he has literally no protein food on which to grow his fall pigs. This is the greatest obstacle to the raising of two broods of pigs a year. The farmer that has held to his own way and has some of his cows come in fresh late in the year is able to take advantage of the conditions and thus to make more money out of his cows than would be possible the other way. In the first place by having some cows come in fresh in the fall and winter he keeps up the supply of milk and butter, and the surplus of either can be sold at a good price. The very fact that he has a surplus of milk for his fall pigs greatly increases the amount of money he can get out of the swine department of the farm. The hired man is less pressed for time in the fall, winter and early spring, and so can attend to the milking and to looking after the pigs without the work interfering with the other work of the farm. Moreover, it reduces the amount of milking that has to be done in the warm season when all farm work is pressing. The farmer that will regard his three or four cows of value and treat them as if they were an important part of the farm establishment will be able to accomplish wonders with them. He has the advantage of the professional dairyman in that he does not have to hire extra help to take care of them. So far as the work of caring for them is concerned it is a side issue and must continue to be. This fact reduces the expense of keeping these few cows to the lowest possible point and makes any returns from them almost all profit. The general farmer does not

appreciate the fact, but it will pay him to be as scientific in the treatment of these few cows as he would be if he had more. In the first place he should secure scales and a Babcock milk tester so that the milk of the cows may be both weighed and tested. The money invested will be found to be insignificant when set over against the value of the results if the owner sets about to secure those results. The first of these will be to eliminate some of the cows. In the little herds on the farms are found a large number of very poor cows, out of all proportion to the proportion those herds bear to all. The cause is the lack of attention by the farmer to the question of quality among the cows. Many a farmer has a group of cows that he has never considered in relation to what other cows might do in the production of dairy food. We have known of cows in these herds that did not make a quarter of a pound of butter every day; yet their owner never found fault. He did not even think about the matter, much less consider the problem twice as well. In these days, it is not at all uncommon to find cows that will make a pound of butter a day during several months of the year in which they are giving a nearly full mess of milk. If the farmer awakes to the possibilities of his cows, he will at once seek out some of the best cows and purchase them, eliminating the poorest ones in his herd. He will be surprised to find that these very good cows can be purchased at only a little more than would be required to buy a very ordinary milker. This proves that the farmers as a class do not put upon a really good cow her true value, for if they did it would no longer be possible to buy a cow that will give a pound of butter a day at a price little above what would have to be paid for a cow that will produce butter fat enough to make only a quarter of a pound of butter per day. The possibilities in the few farmers' cows have been realized by some farmers who have bought the best cows they could find and have found them exceedingly profitable. Four good cows, deep and persistent milkers, giving milk rich in butter fat will not require much more attention than four poor cows, and they will often give ten times the profit. This fact is being impressed on the farming community by some of our experiment stations, notably that of Illinois. The remarkable work being done by the dairy department of the University of Illinois stands out very prominently. The lessons have been of great use to the farmers of the state and evidences are not wanting that a forward movement has begun that we shall not soon see the end of. The poor cow is being held up in a light that shows all her worthlessness, while



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USE CARNEFAC Stock Food FOR THAT THIN HORSE

the good cow is being illustrated in so many ways that the profit in keeping her is manifest. If the farmers of Illinois pay attention to the matter they may easily so improve these little herds of cows that each one will yield \$10.00 net profit more than at the present time, which would mean many millions of dollars clear profits in the pockets of Illinois farmers. The improvement of the quality of these cows is largely one that affects the profits only, expenses must go on anyway, whether good or poor cows are kept, whether the farmer keeps a cow that will give him a profit of \$5.00 a year or whether he keeps a cow that will give him a profit of \$15.00 per year.

Remedies for Stock Diseases.

The following remedies for diseases common to stock may be worthy of note, as they are certain to be of service to farmers at some time or another. For diarrhoea in calves, the first remedy should be a dose of linseed oil, or castor oil, after which some stimulant as brandy or whiskey should be given. Another thing found good is raw egg, ground ginger or peppermint, a few ounces of starch (cold) or a spoonful of chalk. These should be given in the milk, and it would be well to have it boiled. The drug recommended for this complaint is half a teaspoonful of laudanum.

In autumn, a disease which is known as husk, or boose, is commonly found to attack young cattle. The principal symptoms are coughing. This is caused by little worms getting into the throats of the animals gathering in the wind pipe, and hence the coughing.

Cattle thus affected generally are found on damp lowlands. Such lands should be well salted or limed and thoroughly drained and reclaimed, when it is possible. Such cattle by their coughing up of these little worms on to the grass help to spread the disease.

The best remedy to give the cattle affected is just to dose them with turpentine and linseed oil. Fumigation is very effectively carried out by collecting all the diseased calves into a shed, which should be close. Then carry a quantity of burning coals into the shed, and throw some flour of sulphur on to them, thus raising a strong fume of the sulphur. Contrive to keep on the sulphur until the calves begin to cough strongly.

Very often we find worms in horses too, and when such are present the animal often becomes very much emaciated. A tonic or condition powder is good and can be made of half a drachm of sulphur of iron, two drachms of powdered gentian to be given every morning for a week. Common salt is also good, and it is well, too, to have rock salt about. Liming and salting are indispensables to farming. Such obviate the presence of fluke and these little wretched mites the red worms, and remember the smaller they are the worse they are.

Dry murrain is a form of indigestion and is attributable to several causes, such as dry feeding, dry grass in summer, over-driving, red-water, etc. We find this to occur

often twice a year in spring and fall. The following is recommended: 1 lb. epsom salts, $\frac{1}{2}$ lb. common salt, 1 oz. ginger, 1 oz. jalap, 1 lb. molasses.

In case of red water, the following is a good remedy: Give 1 drachm of carbolic acid, 1 quart linseed oil.

Milk fever often attacks cows in high condition. The common symptoms are stamping the feet on the ground and sometimes convulsions set in. The beast lies down and perhaps remains down. As we know the disease is in the udder, the medicine should be administered through the teats with the udder by means of a syringe. The best remedy is to apply iodide of potassium squirted into the udder.

When the cow has recovered give her 1 lb. epsom salts, 1 lb. molasses, 1 oz. ginger, and a quart of beer. This should be given five days before calving.

Good Because it Does Good.

The common ailments, while few, are liable to arise at any time. The best kept horses, and those receiving the least care, are alike liable to the ordinary troubles as spavins, ringbone, splint, curb, lameness, cuts and bruises.

It is well for horse owners, that these diseases all yield to the same treatment, and can all be cured completely with the same remedy. This dependable remedy—which is very inexpensive—is Kendall's Spavin Cure. Even the most stubborn cases, which veterinaries have failed to relieve, yield to Kendall's Spavin Cure.

In the thirty years in which this reliable remedy has been used by farmers, stockmen, liverymen, and in private and racing stables, it has given complete satisfaction.

Certainly, those who own horses, are not consulting their own best interests, if they do not keep a bottle of Kendall's Spavin Cure in the barn.

Dr. B. J. Kendall Co., makers of this famous preparation, publish a book entitled "A Treatise on the Horse and His Diseases," which is invaluable to those who want to keep their horses well and save veterinaries' bills. A copy may be obtained at most dealers or will be sent free by addressing the above Company at Enosburg Falls, Vermont, U. S. A.

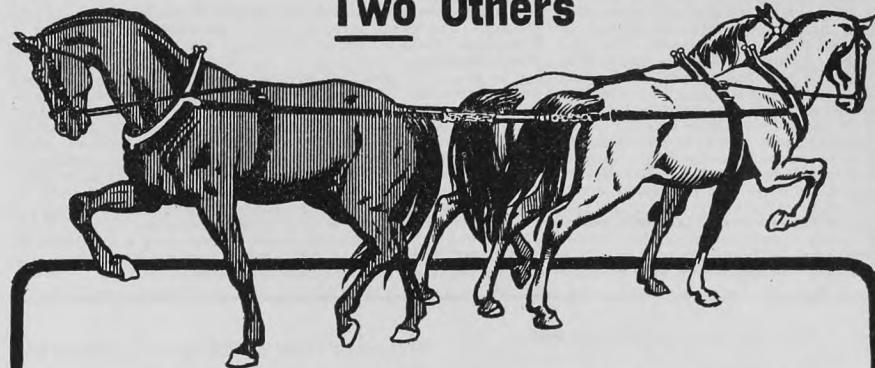
Weaning time is a critical period in the life of the colt. Put a halter on it and tie it beside its mother at night letting it run with her in the day time for a few days, then wean it altogether, but do not keep it tied in the stable all of the time. Give it a box stall or yard, or better, a pasture with some other colts, yearlings, or two-year olds, that it is acquainted with, and it will grow right along. Feed it well the first winter, give it the best hay you have, some corn fodder, plenty of oats, a little bran and some carrots, if you have them, so that it never loses its colt fat. After the pasture is good, gradually decrease the oats until it is on pasture alone. It will grow fast and go into winter quarters in fine condition. Feed them well the next winter; in fact, we always feed well.

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THE REFUGEES

By A. CONAN DOYLE

Author of "The Return of Sherlock Holmes"

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SYNOPSIS OF PREVIOUS CHAPTERS.

Adele Catinat is much worried at her father's absence from home, also the departure of her cousin, Amory de Catinat, to whom she shows a notice served on her father that he shall house and feed twenty Blue Dragoons for an indefinite time. At this moment Amos Green, a young Canadian friend of her father, dismounts at the door and keeps Adele company.

At this time great rivalry prevails in the palace between Mme. de Montespan, former favorite of the king, and Mme. de Maintenon, present favorite. The great levee is held. Brother of Montespan is refused the king's presence. Enraged, Montespan forces herself on the king's notice. She is treated coldly. The king attends chapel with great ceremony.

On his way from chapel the king is met by the cloth merchant who begs him to have the Dragoons removed from his house, but is repulsed and called a heretic. Leaving the palace the merchant meets his nephew, Amory, and tells him the state of affairs at home, and they make a hurried journey home.

On their arrival they find the house surrounded by a crowd of people. In an upper window stands Amos holding Captain Dalbert of the Dragoons by one foot suspended from the window while the Captain screams for help. Amos extracts a promise from him that he will take his soldiers away and molest them no more, but this is not kept and as soon as the Captain is released he and his soldiers attack Amos, and as De Catinat enters the house he is met by a rolling muttering mass of men as, locked in one another's arms, they tumble down the stairs. A fierce contest ensues in the midst of which enters Prince Conde who calls them to order and orders the Dragoons to leave the house. Amos is highly complimented on his bravery and chivalry. De Catinat orders horses and with Amos he rides back to the palace to show Amos the wonderful sights. As he enters Versailles he is met by the confidante of Maintenon with an urgent message that she wishes to see him immediately.

(Continued from our previous issue)

CHAPTER V (continued).

"Then I will come at once. Ah, De Brissac, it is well met!"

A tall, burly officer was passing in the same uniform which De Catinat wore. He turned at once and came smiling toward his comrade.

"Ah, Amory, you have covered a league or two from the dust on your coat!"

"We are fresh from Paris. But I am called on business. This is my friend, M. Amos Green. I leave him in your hands, for he is a stranger from America and would fain see all that you can show. He stays with me at my quarters. And my horse, too, De Brissac. You can give it to the groom."

Throwing the bridle to his brother officer and pressing the hand of Amos Green, De Catinat sprang from his horse and followed at the top of his speed in the direction which the young lady had already taken.

CHAPTER VI.

The rooms which were inhabited by the lady who had already taken so marked a position at the court of France were as humble as were her fortunes at the time when they were allotted to her, but with that rare tact and self restraint which were the leading features in her remarkable character she had made no change in her living with the increase of her prosperity and forbore from provoking envy and jealousy by any display of wealth or of power. In a side wing of the palace, far from the central salons and only to be reached by long corridors and stairs, were the two or three small chambers upon which the eyes, first of the court, then of France and finally of the world, were destined to be turned. In such rooms had

the destitute widow of the poet Scarron been housed when she had first been brought to court by Mme. de Monstepan as the governess of the royal children, and in such rooms she still dwelt now that she had added to her maiden Francoise d'Aubigny the title of Marquise de Maintenon, with the pension and estate which the king's favor had awarded her.

The young guardsmen had scarce ever exchanged a word with this powerful lady, for it was her taste to isolate herself and to appear with the court only at the hours of devotion. It was therefore with some feelings both of nervousness and of curiosity that he followed his guide down the gorgeous corridors, where art and wealth had been strewn with so lavish a hand. The lady paused in front of the chamber door and turned to her companion.

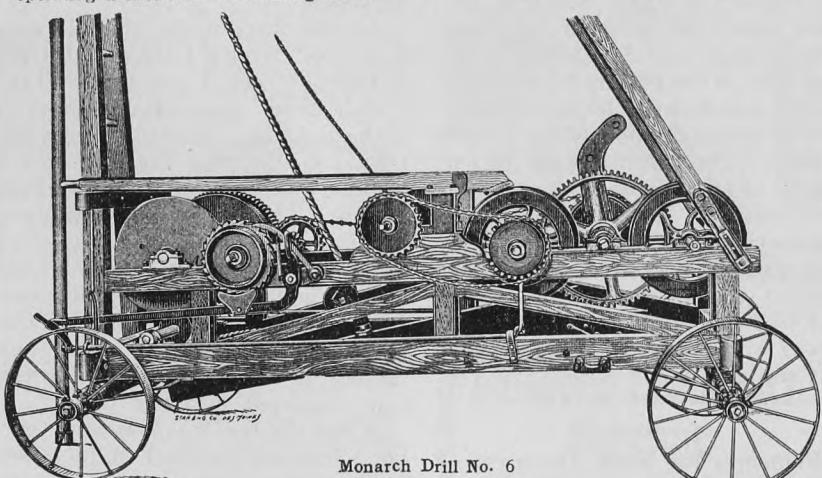
"Madame wishes to speak to you of what occurred this morning," said she. "I should advise you to say nothing to madame about your creed, for it is the only thing upon which her heart can be hard." She raised her finger to emphasize the warning, and, tapping at the door, she pushed it open. "I have brought Captain de Catinat, madame," said she.

"Then let the captain step in." The voice was firm and yet sweetly musical.

Obeying the command, De Catinat found himself in a room which was no larger and but little better furnished than that which was allotted to his own use. Yet, though simple, everything in the chamber was scrupulously neat and clean, betraying the dainty taste of a refined woman. The stamped leather furniture, the La Savonniere carpet, the pictures of sacred subjects, exquisite from an artist's point of view, the plain but tasteful curtains, all left an impression half religious and half feminine, but wholly sooth-

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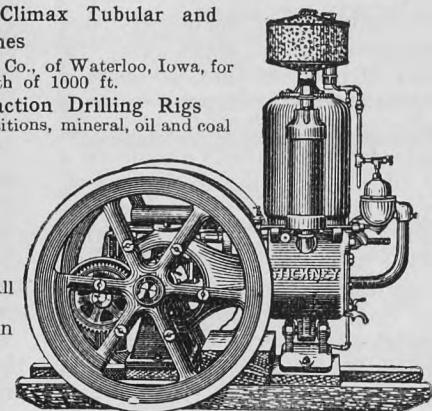
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ing. Indeed, the soft light, the high white statue of the Virgin in a canopied niche, with a perfumed red lamp burning before it, and the wooden prie-dieu with the red edged prayer book upon the top of it made the apartment look more like a private chapel than a fair lady's boudoir.

On each side of the empty fireplace was a little green covered armchair, the one for madame and the other reserved for the use of the king. A small three legged stool between them was heaped with her workbasket and her tapestry. On the chair which was farthest from the door, with her back turned to the light, madame was sitting as the young officer entered. De Catinat, without having time to notice details, was simply conscious that he was in the presence of a very handsome woman and that her large, pensive eyes were fixed critically upon him and seemed to be reading his thoughts as they had never been read before.

"I think that I have already seen you, sir. Have I not?"

"Yes, madame. I have once or twice had the honor of attending upon you, though it may not have been my good fortune to address you."

"My life is so quiet and retired that I fear that much of what is best and worthiest at the court is unknown to me. You have served, monsieur?"

"Yes, madame. In the Lowlands on the Rhine and in Canada."

"In Canada! Ah! What nobler ambition could woman have than to be a member of that sweet sisterhood which was founded by the holy Marie de l'Incarnation and the sainted Jeanne le Ber at Montreal? And doubtless you have had the privilege also of seeing the holy Bishop Laval?"

"Yes, madame, I have seen Bishop Laval."

"And I trust that the Sulpicians still hold their own against the Jesuits?"

"I have heard, madame, that the Jesuits are the stronger at Quebec and the others at Montreal."

"And who is your own director, monsieur?"

De Catinat felt that the worst had come upon him. "I have none, madame."

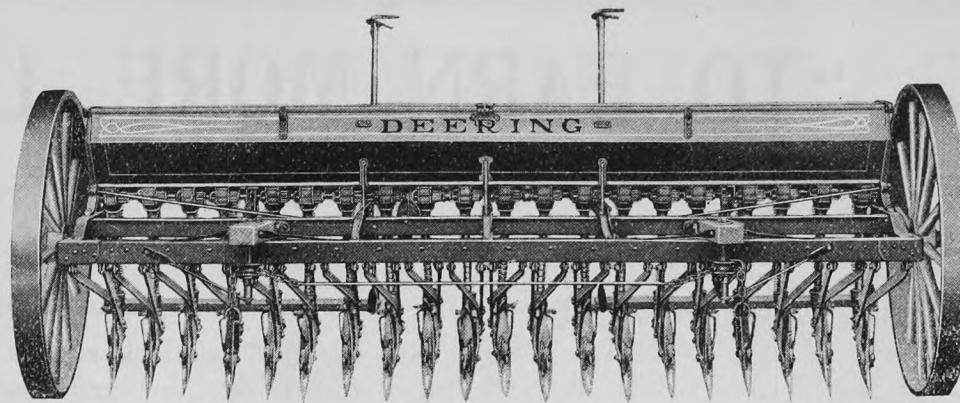
"Ah, it is too common to dispense with a director, and yet I know not how I could guide my steps in the difficult path which I tread if it were not for mine. Who is your confessor, then?"

"I have none. I am of the Reformed church."

The lady gave a gesture of horror, and a sudden hardening showed itself in mouth and eye. "What, in the court itself," she cried, "and in the neighborhood of the king's own person!"

"You will find, madame," said De Catinat sternly, "that members of my faith have not only stood around the throne of France, but have even seated themselves upon it."

"God has for his own all wise pur-



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go hand in hand. Proper seeding is accomplished best by Deering disk and shoe drills, as they place the seed in the soil in the best manner for proper germination.

When it comes to the purchase of a drill the conditions of soil texture vary so widely that in some localities a shoe drill is more satisfactory than a disk drill. In other localities the disk drill is preferable. No matter which drill a farmer desires he will find it in the Deering line.

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poses permitted it, and none should know it better than I, whose grand-sire, Theodore d'Aubigny, did so much to place a crown upon the head of the great Henry. But Henry's eyes were opened ere his end came, and I pray—oh, from my heart I pray—that yours may be also."

She rose and, throwing herself down upon the prie-dieu, sunk her face in her hands for some few minutes. A tap at the door brought the lady back to this world again, and her devoted attendant answered her summons to enter.

"The king is in the Hall of Victories, madame," said she. "He will be here in five minutes."

"Very well. Stand outside and let me know when he comes. Now, sir," she continued when they were alone once more, "you gave a note of mine to the king this morning?"

"I did, madame."

"And, as I understand, Mme. de Montespan was refused admittance to the grand lever?"

"She was, madame."

"But she waited for the king in the passage and wrung from him a promise that he would see her to-day?"

"Yes, madame."

"I would not have you tell me that which it may seem to you a breach of your duty to tell. But I am fighting now against a terrible foe and for a great stake. Tell me, then, at what hour was the king to meet the marquise in her room?"

"At 4, madame."

"I thank you. You have done me a service, and I shall not forget

it. Now you must go, captain. Pass through the other room and so into the outer passage. And take this. It is Bossuet's statement of the Catholic faith. It has softened the hearts of others and may yours. Now, adieu!"

De Catinat passed out through another door, and as he did so he glanced back. The lady had her back to him, and her hand was raised to the mantel-piece. At the instant that he looked she moved her neck, and he could see what she was doing. She was pushing back the long hand of the clock.

Captain de Catinat had hardly vanished through the one door before the other was thrown open by Mlle. Nanon, and the king entered the room. Mme. de Maintenon rose with a pleasant smile and courtesied deeply, but there was no answering light upon her visitor's face, and he threw himself down upon the vacant armchair with a pouting lip and a frown upon his forehead.

"Nay, now this is a very bad compliment," she cried, "My poor little dark room has already cast a shadow over you."

"Nay; it is Father la Chaise and the bishop of Meaux, who have been after me all day like two hounds on a stag, with talk of my duty and my position and my sins, with judgment and hell fire ever at the end of their exhortations."

"And what would they have your majesty do?"

"Break the promise which I made when I came upon the throne, and which my grandfather made before me. They wish me to recall the

edict of Nantes, and drive the Huguenots from the kingdom. You would not have me do it, madame?"

"Not if it is to be a grief to your majesty. Bethink you, sire, that the Almighty can himself incline their hearts to better things if he is so minded, even as mine was inclined. May you not leave it in his hands?"

"On my word," said Louis, brightening, "it is well put. I shall see if Father la Chaise can find an answer to that. It is hard to be threatened with eternal flames because one will not ruin one's kingdom."

"Why should you think of such things, sire?" said the lady in her rich, soothing voice. "What have you to fear, you who have been the first son of the church?"

"You think that I am safe, then? But I have erred and erred deeply. You have yourself said as much."

"But that is all over, sire. Who is there who is without stain? You have turned away from temptation. Surely, then, you have earned your forgiveness."

"I would that the queen were living once more. She would find me a better man."

"I would that she were, sire."

"And she should know that it was to you that she owed the change. Oh, Francoise, you are surely my guardian angel, who has taken bodily form! How can I thank you for what you have done for me?" He leaned forward and took her hand, but at the touch a sudden fire sprang into his eyes, and he would have passed his other arm round her had

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she not risen hurriedly to avoid the embrace.

"Sire!" said she, with a rigid face and one finger upraised.

"You are right; you are right, Francoise. Sit down, and I will control myself. But how is it, Francoise, that you have such a heart of ice?"

"I would it were so, sire."

"No. But surely no man's love has ever stirred you! And yet you have been a wife. You did not love this Scarron?" he persisted. "He was old, I have heard, and as lame as some of his verses."

"Do not speak lightly of him, sire. I was grateful to him; I honored him; I liked him."

"You did not love him, Francoise?"

"At least I did my duty toward him."

"Has that nun's heart never yet been touched by love, then?"

"Spare me, rise, I beg of you!"

"But I must ask, for my own peace hangs upon your answer."

"Your words pain me to the soul."

"Have you never, Francoise, felt in your heart some little flicker of the love which glows in mine?" He rose with his hands outstretched, a pleading monarch, but she, with half turned head, still shrank away from him.

"Be assured of one thing, sire," said she, "that even if I loved you

neath than ever by word or sign confess as much to you."

"And why, Francoise?"

"You have wasted too much of your life and of your thoughts upon woman's love. And now, sire, the years steal on, and the day is com-

ing when even you will be called upon to give an account of your actions and of the innermost thoughts of your heart. I would see you spend the time that is left to you, sire, in building up the church, in showing a noble example to your subjects."

The king sank back into his chair with a groan. "Forever the same," said he. "Why, you are worse than Father la Chaise and Bossuet."

"Nay, nay," said she gayly, with the quick tact in which she never failed. "I have wearied you when you have stooped to honor my little room with your presence. That is indeed ingratitude, and it were a just punishment if you were to leave me in solitude tomorrow and so cut out the light of my day. And why have you not ridden today, sire?"

"Pah! It brings me no pleasure. There was a time when my blood was stirred by the blare of the horn and the rush of the hoofs, but now it is all wearisome to me."

"And hawking too?"

"Yes; I shall hawk no more."

"But, sire, you must have amusement."

"What is so dull as an amusement which has ceased to amuse? I know not how it is. When I was but a lad, and my mother and I were driven from place to place, with the Fronde at war with us and

Paris in revolt, with our throne and even our lives in danger, all life seemed to be so bright, so new and so full of interest. Now that there is no shadow and that my voice is the first in France, as France's is in Europe, all is dull and lacking in flavor. What use is it to have all pleasure before me when it turns to wormwood when it is tasted?"

"True pleasure, sire, lies rather in the inward life, the serene mind, the easy conscience. And, then, as we grow older is it not natural that our minds should take a graver bent? We might well reproach ourselves if it were not so, for it would show that we had not learned the lesson of life."

"It may be so, and yet it is sad and weary when nothing amuses. Who is that knocking?" asked the king.

"It is my companion," said madame. "What is it, mademoiselle?"

"M. Corneille, to read to the king," said the young lady opening the door.

"Ah, yes, sire; I know how foolish is a woman's tongue, and so I have brought a wiser one than mine here to charm you. M. Racine was to have come, but I hear that he has had a fall from his horse, and he sends his friend in his place. Shall I admit him?"

"Oh, as you like, madame, as you like," said the king listlessly. At a



He bowed profoundly three times.

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sign from Mlle. Nanon a little peaky man with a shrewd, petulant face and long gray hair falling back over his shoulders entered the room. He bowed profoundly three times and then seated himself nervously on the very edge of the stool, from which the lady had removed her workbasket.

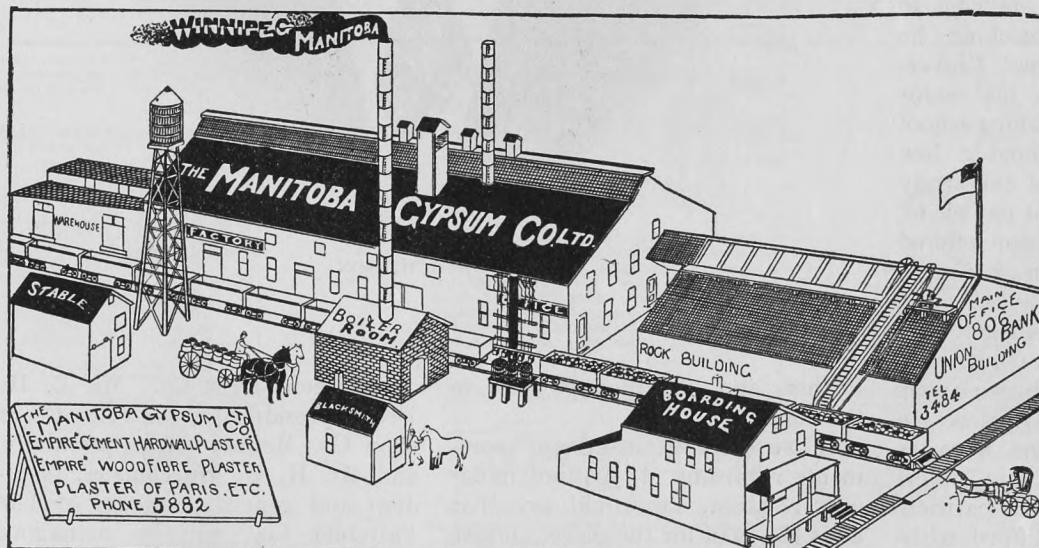
"Shall it be a comedy, or a tragedy, or a burlesque pastoral?" Corneille asked timidly. "There is my 'Pretended Astrologer.'"

"Yes, that will do."

Corneille commenced to read his comedy, while Mme. de Maintenon's white and delicate fingers picked among the many colored silks which she was weaving into her tapestry. From time to time she glanced across, first at the clock and then at the king, who was leaning back, with his lace handkerchief thrown over his face. It was twenty minutes to 4 now, but she knew that she had put it back half an hour and that the true time was ten minutes past.

"Tut, tut!" cried the king suddenly. "There is something amiss there. The second last line has a limp in it surely." It was one of his foibles to pose as a critic, and the wise poet would fall in with his corrections, however unreasonable they might be.

"Your majesty is perfectly right," said Corneille unblushingly. "I shall mark the passage and see that it is corrected." He picked up his book again and was about to resume



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his reading when the king said:

"M. Corneille, I am obliged to you for what you have read, and I regret that I must now interrupt your comedy. Some other day perhaps I may have the pleasure of hearing the rest of it." He smiled in the gracious fashion which made all who came within his personal influence forget his faults and remember him only as the impersonation of dignity and of courtesy.

The poet, with his book under his arm, slipped out, while his majesty said to madame:

"I see by your clock that it is 4

o'clock. I must go."

"My clock, sire, is half an hour slow."

"Half an hour!" The king looked dismayed for an instant and then began to laugh. "Nay, in that case," said he, "I had best remain where I am, for it is too late to go, and I can say with a clear conscience that it was the clock's fault rather than mine."

"I trust that it was nothing of very great importance, sire," said the lady, with a look of demure triumph in her eyes.

"By no means."

"No state affairs?"

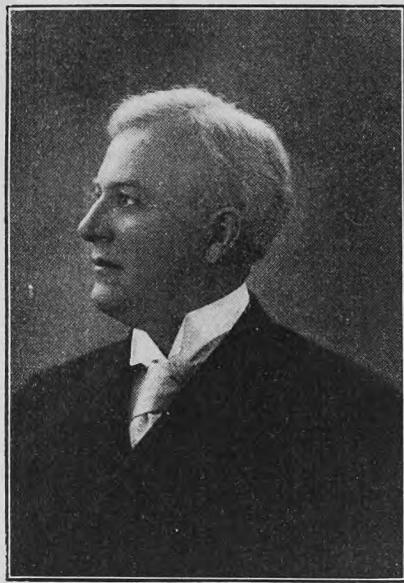
"No, no; it was only that it was the hour at which I had intended to rebuke the conduct of a presumptuous person. But perhaps it is better as it is. My absence will in itself convey my message and in such a sort that I trust I may never see that person's face more at my court. But, ah, what is this?"

The door had been flung open, and Mme. de Montespan, beautiful and furious, was standing before them.

(To be continued in our next issue).

Personal Mention

Mr. E. J. Gifford, the subject of this sketch, was born near Pavonia, Ohio, June 26th, 1860. He is of



E. J. GIFFORD

English extraction, his parents being born and raised on the border of the city of London, England, they coming to Ohio in 1858. Mr. Gifford spent his early life on the farm, working there during the summer months and during the winter attending the different district schools of his township. At the age of twenty he entered Baldwin University, where he remained for several terms, but desiring to perfect himself for teaching he entered the Ohio Normal University, which he left in his senior year. In 1887, after teaching school for some time he entered a law office where he pursued the study of law. In 1890, he went to Toledo, Ohio, to accept a position offered him by Arbuckle-Ryan & Co., a large machinery firm, as sales, credit and collection manager. He remained with this firm until December, 1900, when with two others a new company was formed in Toledo, along the same lines as Arbuckle-Ryan & Co., but differences arising between the partners in the concern, Mr. Gifford withdrew from them. In August, 1901, Mr. Gifford accepted a position with the J. I. Case Threshing Machine Co., as sales and collection manager in North Dakota. He remained with this firm on sales and collections until February, 1903, when he was transferred to Winnipeg as general collector for Western Canada. He remained with this concern until September, 1906, when he resigned and entered the employ of the Sawyer-Massey Co. On July 15th of the present year, Mr. Gifford accepted a position as manager for Western Canada for the Northwest Thresher Co., with which concern he is at present employed.

Mr. Gifford is a man who might be considered to have spent the greater part of his life in the machinery business, but who also has employed his spare time to the best

advantage along lines of culture and development. While in the States he was one of the members of the Lincoln Club, of Toledo, which wielded a strong influence politically in the state. Mr. Gifford also served a term as member of the Board of Education in the city of Toledo, where over four hundred and fifty teachers and principals were employed, and since that time has always taken a keen interest in things educational. He is a member of the Knights of

trip West to Edmonton and other points. Mr. Antliff reports prospects as good in the Western country despite anything that may be said to the contrary.

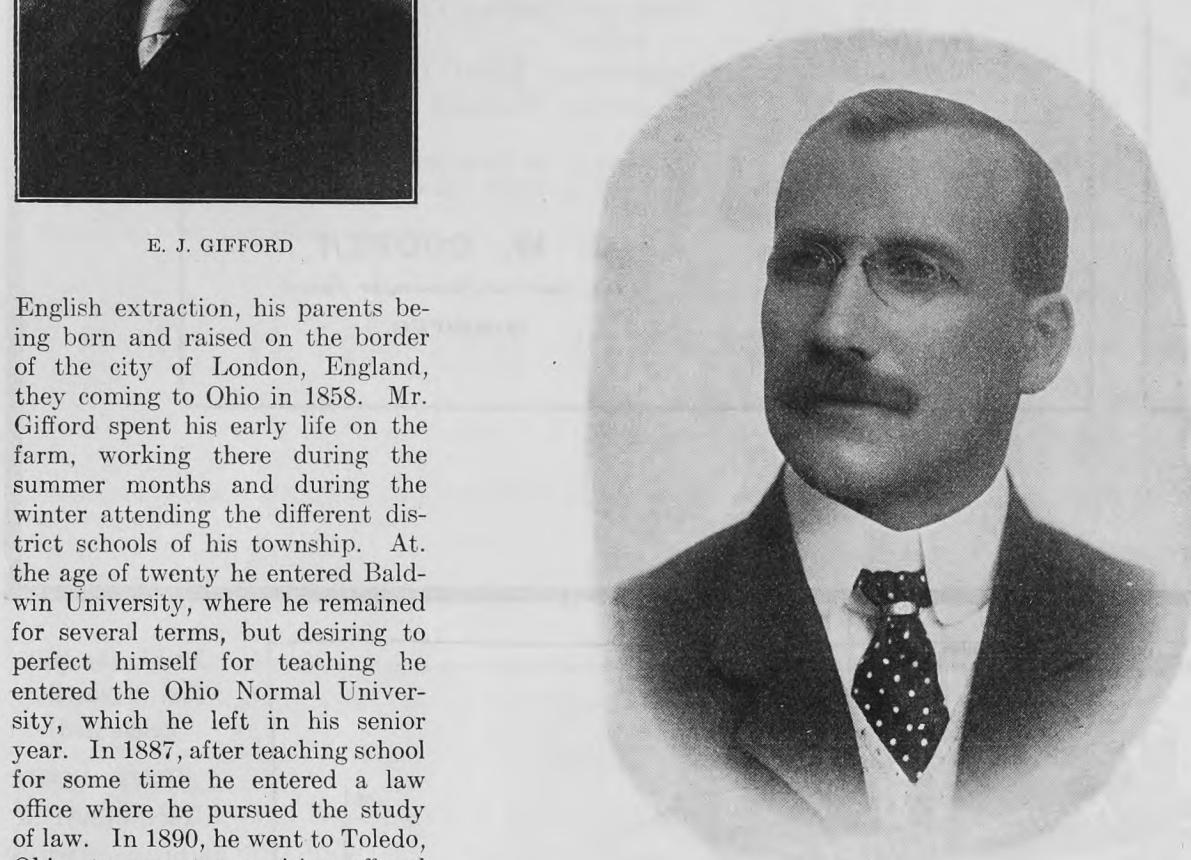


In another part of this issue will be found an announcement of the change in the Fairchild Co., Limited, of this city, whereby the above concern has transferred its properties, good-will, etc., to the John Deere Plow Co., of Moline, Illinois, involving an expenditure of some \$700,000. The new concern will do business under the name of The

company. This position he has held up to the present time.

Mr. H. Wilber Hutchinson, who will be managing director of the John Deere Plow Co., in Canada, was born at Enniskillen, Ont., in 1862. His father was a country merchant. Mr. Hutchinson received his early education at the public schools and later graduated from Belleville College, Belleville, Ont. In 1882, he came West as a book-keeper for David Maxwell & Sons, of St. Mary's, Ont., and the following year became manager of their Western business. In 1888 he joined Frank A. Fairchild and became the executive head as well as manager of the Company.

By the time the transfer to Deere & Co. takes place, Mr. Hutchinson will have completed twenty-five years in the implement service of the West. During that time he has seen the country grow from one of local importance to one of world significance, and in his line of work has been more closely associated with its work than any other man living to-day. He has been a moving factor in the Winnipeg Wholesale Implement Associations since its inception, having served both the positions of secretary and treasurer, and has always taken a keen interest in the subjects that concerned the affairs of that organization. Mr. Hutchinson has also been a prominent member of the local Board of Trade, having filled the president's chair for one term besides serving on a number of its most important committees.



H. W. HUTCHINSON.

Pythias and an ardent worker in that order.

If we were to make any comments regarding Mr. Gifford in his new position, we would say that he is the man for the place, and we trust that the Northwest Thresher Company's business in Western Canada under his supervision and direction will reflect credit both upon himself and upon the company he represents.



Mr. S. R. Stratton, Jr., secretary, Gaar-Scott & Co., Richmond, Ind., has just returned South after an extended visit to their Winnipeg and Regina branches. Mr. Stratton reports things as good.



H. W. Hutchinson, president and manager of the Fairchild Co., Ltd., has just returned from a trip to Moline and other southern points, in the interests of his firm.



Mr. W. Antliff, manager for the Melotte Cream Separator Co., has just returned from an extended

John Deere Plow Co. Mr. C. H. Deere, president of the John Deere Plow Co., Moline, will be president, and Mr. H. W. Hutchinson, president and general manager of The Fairchild Co., will be managing director.

The Fairchild Company dates its origin back to 1877, when H. S. Wesbrook and Frank A. Fairchild entered into a partnership to handle implements in Western Canada. This partnership continued until October 1st, 1887, when it was dissolved. Mr. Wesbrook retired and the business carried on under the name of the Frank A. Fairchild & Co. In 1895, a joint stock company was formed with a capital stock of \$100,000 and the firm became known as The Fairchild Co., the officers being: Frank A. Fairchild, of H. Fairchild, I. E. Fairchild, Geo. E. Dixon and H. W. Hutchinson. Three years later Mr. Frank A. Fairchild died and his interests were acquired by Mr. H. W. Hutchinson, who became president and general manager of the

At the last regular monthly meeting of the Winnipeg Wholesale Implement Association, which was held at Manitoba Hall, Oct. 25th, Mr. Wm. Johnston was made the recipient of a handsome present in the shape of a beautiful gold headed cane engraved with the following: "Presented to William Johnston by W.W.I.A., Oct. 25th, 1907." Mr. E. A. Mott made the presentation speech, touching principally upon the general regret felt by the members upon Mr. Johnston's retirement from the implement field, he, Mr. Johnston, having just recently sold his business to the Parlin & Orendorff Canadian Plow Co. Talks were also made by Mr. Whitaker, president of the association, and others who touched upon Mr. Johnston's long service in the implement field extending over a period of 37 years, and of the great respect and admiration he had won both from the customers and from his competitors during that time.

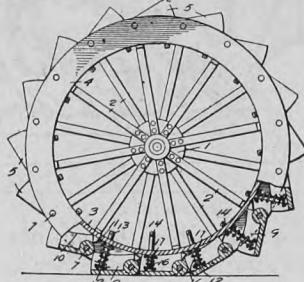


H. W. Fleury, of J. Fleury's Sons, of Aurora, Ont., arrived from the East yesterday and is a guest at the Royal Alexandra. Mr. Fleury expects to spend a few days in the city visiting the various wholesale implement houses, who are handling his line of goods.

Current Patents

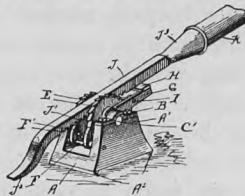
Compiled Monthly from the Official Gazette
of the U. S. Patent Office.

861,625. WALKING TRACTION-WHEEL. JOHN W. WOOLLEY, Berkley, Va. Filed Feb. 4, 1907. Serial No. 355,657.



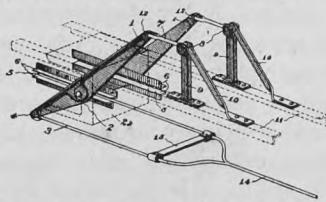
1. A traction wheel having a series of blades arranged about its rim, each blade being pivoted at one end and having a cushion arranged between the other end and the rim, and a stop projecting from the pivoted end to engage the rim and limit the outward swinging of the blade.

553,437. LIFTING-JACK. JOHN J. BRADSHAW, Jersey City, N. J. Filed June 23, 1906. Serial No. 323,063.



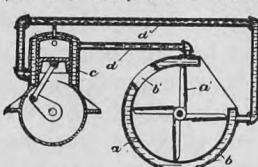
Claim.—1. In a lifting jack, the combination with a shaft carrying a gear wheel, of arms mounted on said shaft a toothed lever bar mounted on said gear wheel adapted to engage said arms and means carried by said arms for rotating said shaft for the purpose described.

553,415. HAY-BALING DEVICE. MARVIN MEAD, Pueblo, Colo. Filed Apr. 24, 1906. Serial No. 313,366.



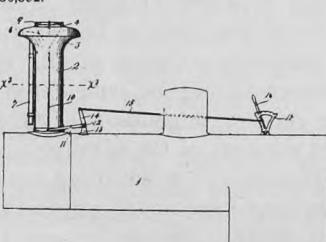
Claim.—1. In combination, a bale chamber having slots in its sides, guide plates arranged adjacent the slots, a plunger within the chamber, trunnions on the plunger extending through the slots between the guides, levers mounted on the trunnions of the plunger, links pivoted to the upper ends of the levers, said links being carried by the chamber, and pull rods connected to the opposite ends of the levers.

863,466. THRESHING-MACHINE. RICHARD SYLVESTER, Lindsay, Ontario, Canada. Filed Jan. 26, 1906. Serial No. 298,039. Renewed May 2, 1907. Serial No. 371,473.



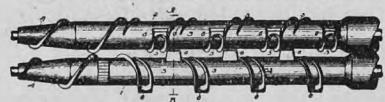
A grain separating mechanism having an air blower therefor, a water jacket around the blower, in connection with a motor having a water jacket and circulating pipes connecting the water jackets of the motor and air blower.

863,685. SPARK-ARRESTER. JOHN H. WHITE, Rondeby, Minn., assignor of one-half to Henry M. Huffman, Farrette, Mont. Filed Sept. 28, 1906. Serial No. 336,592.



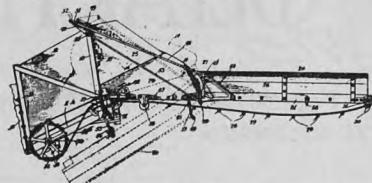
In combination with a smoke stack 2 provided at its upper end with a hood 3, formed with an upwardly curved outwardly flaring lower portion, and at its top with a circular discharge passage of the same diameter as the stack 2, the upwardly curved outwardly flaring inner collar portion 5 secured within the said hood and co-operating with the outwardly flaring lower portion of said hood to form an annular upwardly flaring cylinder receptacle 6, a discharge tube 7 leading downward from said annular receptacle 6, an inverted conical reticulate cap 8 mounted for vertical movements within said discharge passage 4 and means for raising and lowering the same, substantially as described.

863,812. SNAPPING-ROLLERS FOR CORN-HARVESTERS. JOHN A. STONE, Chicago, Ill., assignor to International Harvester Company, a Corporation of New Jersey. Filed Mar. 22, 1907. Serial No. 363,817.



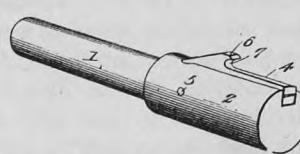
1. A snapping-roller for corn-harvesters comprising, in combination, a body portion and a series of pairs of ribs arranged spirally thereon in a manner to move the stalks longitudinally relative to the axis of the roller, each pair of said ribs terminating in a bridge spanning the interstices channel.

863,082. FOLDING CARRIER-FRAME. CHARLES J. MCINTOSH, Racine, Wis., assignor to J. I. Case Threshing Machine Company, Racine, Wis., a Corporation. Filed July 17, 1905. Serial No. 269,963.



1. The combination with a suitable support and with a folding frame comprising inner and outer sections hinged together, said inner section being hinged to said supports, of a connection between the support and said outer section, and a rock-lever on one of said connected parts to which said connection is pivoted, substantially as described.

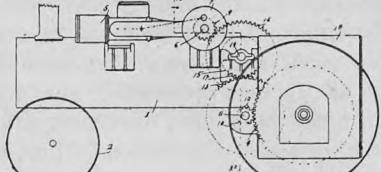
855,363. FLUE-BEATER TOOL. LEWIS A. TINNES, Bird Island, Minn. Filed Mar. 16, 1907. Serial No. 362,681.



Claim.—1. A flue working device comprising a shank having a head provided with a longitudinal laterally opening slot, a tool movably arranged in said slot and provided with a projecting portion having an undercut forming surface, and a spring arranged beneath the tool for pressing the same yieldably to active position.

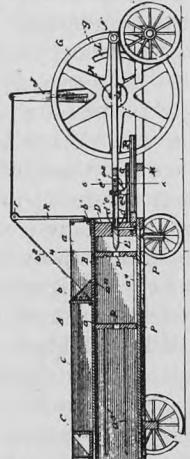
862,214. TRACTION-ENGINE. PAUL SWENSON, Hopkins, Minn. Filed Oct. 12, 1906. Serial No. 338,590.

In a traction engine, the combination with traction wheels 3 and gears 4 carried thereby, of a steam engine mounted on the horizontal portion of its boiler and including an engine driven crank shaft 6, a tube 18 extended transversely through the horizontal portion of said boiler above the flues thereof, bearings 15 secured to the sides of the boiler in line with said tube 18, the shaft 14 journaled in said bearings 15 and extended through said tube 18, the shaft 11 journaled in suitable bearings in the boiler and provided at its ends with pinions 12 meshing with said gears 4, a gear 16 on one end of said shaft 14 and a pinion 17



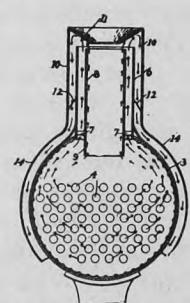
on the other end thereof, a pinion 9 on said shaft 6 meshing with said gear 16, and a gear 13 on said shaft 11 meshing with said pinion 17, substantially as described.

860,284. HAY-PRESS. CHARLES W. DEATON, Salem, Va. Filed Aug. 4, 1906. Serial No. 329,242.



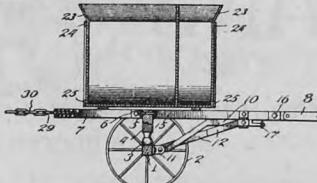
1. A press comprising a baling chamber, a plunger and means for operating it, and a needle having a movement independent of the plunger and actuated by the plunger-actuating mechanism, whereby a ventilating opening is formed in the bale during the act of pressing it.

863,895. SPARK-ARRESTER. CARTER C. ARMSTRONG, Cincinnati, Ohio. Filed June 27, 1906. Serial No. 323,654.



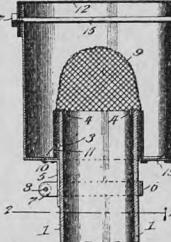
1. In a spark arrestor, the combination with the smoke box of a pair of imperforate smoke pipes, one mounted within the other, with a space between the pipes, the inner pipe, provided with a free uninterrupted inlet and passage therethrough, and having an extension below the inlet of the outer pipe to form a guard to direct the cinders into the outer pipe, a casing surrounding the upper portion of the pipes, with a deflecting plate extending from the casing over the opening between the pipes, and a discharge outlet from said casing.

863,546. TENDER FOR TRACTION-ENGINES. ERNEST MAH, College Place, Wash. Filed Mar. 29, 1907. Serial No. 365,382.



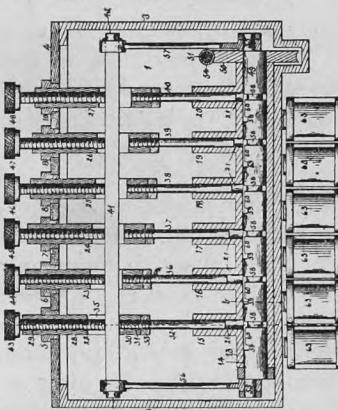
1. A tender for traction engines comprising a frame, an axle, wheels mounted on the axle, a ball and socket connection disposed centrally of the axle and connected to the frame, braces extending from the axle to the frame, a tongue secured to the axle, a cable connected to the front end of the tongue, pulleys journeled in a frame, said cable passed around pulleys and adapted to be connected to the front axle of a traction engine.

865,189. SPARK-ARRESTER. RICHARD LAMB, Lawrence, Mass. Filed Feb. 28, 1907. Serial No. 359,755.



1. In a spark arrester, a drum having a flue engaging aperture in the bottom thereof, upward projecting arms adjacent to said aperture and having terminal hooks, and downward engaging arms adjacent to said aperture, in combination with a clamping ring engaging the downward extending arms, a flue engaging screen hood disposed within the drum exterior of the upward extending arms, and a top cover detachably engaging the drum and including a screen of finer texture than the hood with the drum.

353,946. LUBRICATOR. EVERETTE K. BARNES, Rockford, Ill. Filed Apr. 3, 1906. Serial No. 309,656.



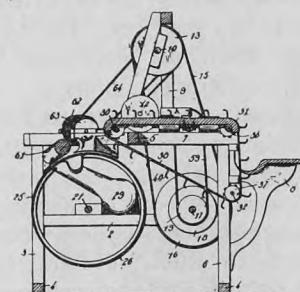
Claim.—1. In a lubricator, the combination of an oil reservoir, a cylinder, a piston for the cylinder, a rotatable valve for the cylinder, comprising a cylindrical shaft, there being an annular groove formed in the periphery of the shaft, a partial annular groove formed in the periphery of the shaft, and a groove extending in the lengthwise direction of the shaft and forming a communication between the annular groove and partial annular groove.

861,446. GRAIN-RIDDLE. WILLIAM H. EMERSON, Detroit, Mich. Filed Jan. 4, 1907. Serial No. 350,764.



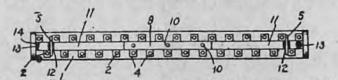
1. In a grain riddle, the combination of a series of upper strips and lower strips arranged at an angle to each other and spaced apart, and a series of spacing plates located in said spaces and having tongues extending through and fastened to the respective strips.

864,238. CORN-HUSKING MACHINE. FRANK J. FITZPATRICK, Pontiac, Ill. Filed Nov. 22, 1906. Serial No. 344,617.



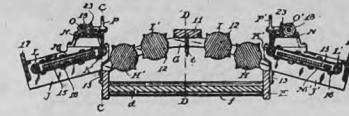
1. In a machine of the character described, a conveyor, circular knives mounted upon opposite sides of the conveyor, longitudinal rollers adjacent to the knives, means for revolving the ears, and means for sucking the husk and silk from the ear, substantially as specified.

863,527. TOOTH-FASTENER. FRANK FRITZ, Alexandria, Minn. Filed Mar. 25, 1907. Serial No. 364,368.



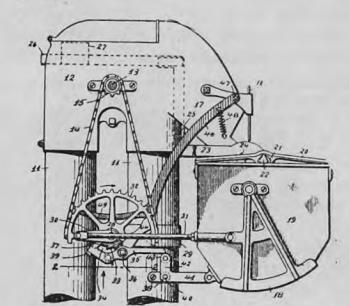
1. In a spark arrestor, the combination with a plate, of a threshing machine concave, teeth having their shanks projecting through said plate, and nuts mounted upon said shanks and disposed in parallel rows, of a longitudinal bar imposed upon said plate between said nuts, and means for holding said bar upon said plate in resilient yieldable relation.

861,533. BAND-CUTTER AND FEEDER FOR THRESHERS. THOMAS S. PEARSON, Clay township, and VICTOR E. VAILE, Center township, Howard county, Ind. Filed Apr. 16, 1906. Serial No. 311,840.



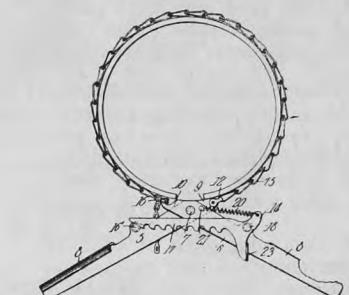
1. A band cutter and feeder including a main feeder having a main frame, a pair of beams mounted on the main frame and having a cap beam provided with a plurality of fingers projecting toward the main feeder, a pair of feed rolls mounted on the pair of beams adjacently to the cap beam, a band cutter and a conveyor delivering to the feed rolls.

863,979. AUTOMATIC WEIGHER. CHARLES L. GARDNER, Peoria, Ill. Filed Mar. 23, 1907. Serial No. 364,145.



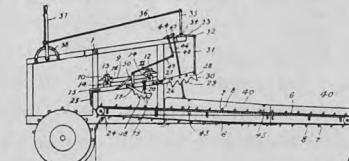
1. In an automatic weigher, the combination with a weigher bucket, a delivery spout, and a valve for the delivery-spout, of mechanism for operating said valve comprising a rotary part, a rod pivoted at one end to the spout-gate and provided with a bearing recess in the other end for engagement with the rotary part, said rod being arranged to normally engage the rotary part beyond the dead center line to exert a rotative pressure on said part and to hold the spout-gate open in such position, a trip shiftable with the weigher bucket for normally holding the said rotary part from movement when the weigher bucket is in the raised position, and means set in operation by the movement of the said trip from the normal position for actuating said rotary part to permit the spout-gate to close and to open said spout-gate.

861,342. PISTON-RING CONTRACTOR. OSCAR WINTER, Elyria, Ohio. Filed Apr. 18, 1907. Serial No. 368,937.



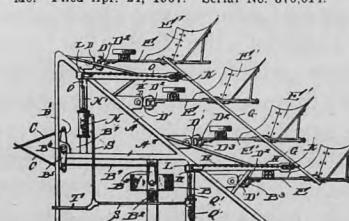
Piston ring contracting tool comprising a pair of pivotally connected arms, the inner ends of which are rounded to form cam surfaces for engagement against the outer face of the piston ring, one of said arms being shaped to form an inwardly bent bill, a shackle pivotally connected to the other arm, a chain having one end connected to the shackle, anyone of the links of the opposite end of the chain being arranged to be engaged by the hook, a pivotally mounted lock bar carried by one of the arms and provided with a locking rack, a pin carried by the other arm and arranged to be engaged by the teeth of such rack, and a spring tending to hold the rack in engagement with the pin, substantially as specified.

864,820. SELF-FEEDER FOR THRESHING-MACHINES. AUGUST ZASTROW, Aberdeen, S. D. Filed Dec. 26, 1903, Serial No. 186,527. Renewed Jan. 26, 1907. Serial No. 354,314.

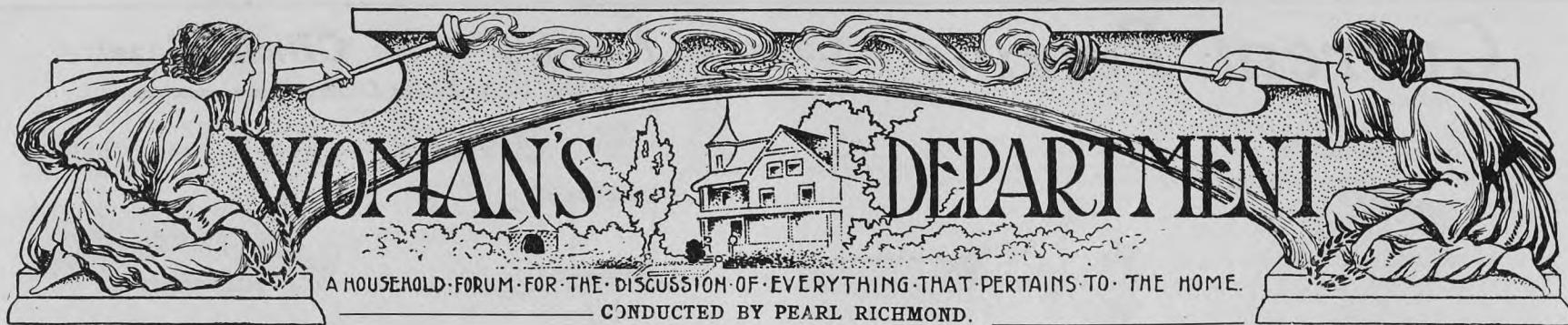


1. In a threshing machine self-feeder, the combination with the conveyor, of a movable center-board and side-boards having their inner edges hinged and their outer edges free, a rock-shaft provided with arms, and hangers connecting the arms to the center-board and the free edges of the side-boards for vibrating all of said boards in vertical direction, substantially as set forth.

863,999. STEAM-PLOW. JAMES JOYCE, Jr., Sikeston, Mo. Filed Apr. 24, 1907. Serial No. 370,014.



1. A steam plow comprising a frame, a series of pivotally mounted plow beams thereon, steam actuated mechanism for raising and lowering the beams, each of said beams having a lateral projection, a boxing having open faces through which said lateral projection extends, a screw swiveled in the top of each casing and passing through said lateral projection, a bearing block mounted within each casing and carrying a castor wheel, and detachable connections between said plow beam, as set forth.



Do Not Wait.

If you have a friend worth loving,
Love him—yes, and let him know
That you love him, ere life's evening
Tinge his brow with sunset glow.
Why should good words ne'er be said
Of a friend—till he is dead?

If you hear a song that thrills you,
Sung by any child of song,
Praise it. Do not let the singer
Wait deserved praises long.
Why should one who thrills your heart
Lack the joy you may impart?

If you hear a prayer that moves you
By its humble, pleading tone,
Join it. Do not let the seeker
Bow before his God alone.
Why should not your brother share
The strength of "two or three" in prayer?

If you see the hot tears falling
From a weeping brother's eyes,
Share them. Yes, and by the sharing,
Own your kinship with the skies.
Why should anyone be glad
When a brother's heart is sad?

If a silvery laugh is rippling
Through the sunshine on his face,
Share it. 'Tis the wise man's saying,
"For both grief and joy a place."
There is goodness in the mirth
In which an honest laugh has birth.

If your work is made more easy
By a friendly, helping hand,
Say so. Speak out brave and truly
Ere the darkness veil the land.
Should a brother workman dear
Falter for a word of cheer?

Scatter thus your seeds of kindness,
All enriching, as you go;
Leave them. Trust the Harvest Giver;
He will make each seed to grow.
Sow until its happy end
You shall never lack a friend.

Household Economy.

"Household Economy" is a term which covers a large field, in fact anything which has to do with the practical side of housekeeping and home making, comes under this subject. The word economy is very much abused and often misunderstood. To some people economy signifies stingy methods, to others it means merely a saving of dollars and cents and to still others it stands for "going without things." None of these definitions is correct, for in its true signification it means frugal management without waste, a wise expenditure of time, strength and money. Many people are so economical in money matters that they overlook the fact that true economy deals with other things besides finances, and in their desire to be saving of pennies they over-exert themselves physically and mentally. A woman who will do without needed help during busy seasons, when such expense would mean economy in the end, is following a short-sighted philosophy

and often must pay dearly for it in later years.

To the average housewife it is no exaggeration to say that if the work in the home were to be done daily by one pair of hands, from garret to cellar, as we would really like to see it, we would not have a moment's leisure from month to month, and outdoor life would become unknown to us. Such being the actual situation which we have to face, the question is how may we overcome these conditions and how arrange our daily living that housework instead of mastering us is itself mastered. How many women are slaves to the work we all know too well; what, then, can we do to avoid falling into the same error?

We know that a woman who must spend all her time in housework, or in fact any kind of work, is not likely to be either healthy or happy. It is not work alone which wears one out physically, but the confinement, monotony and lack of social life, combined with worry, that causes so many miserable women in both city and country homes. No woman has a right to sacrifice her health and comfort for her housework; she owes it to her family to keep well and strong. When this is not done, she becomes a wreck at middle age and usually the responsibility rests with herself.

Women are proverbially the most unselfish of God's creatures and a mother will stop at nothing which concerns the comfort and happiness of her loved ones. No sacrifice is too great, no labor too heavy, if their paths may be the easier for the doing; and she counts no time wasted if spent for her family. While all of this is natural and none of us would wish to have her feel differently, it is sometimes a question if the best results are gained, when all self-denial falls on the mother's shoulders.

We wish our children to have a good time; we wish their youth to be a happy one and their recollections of childhood a pleasure; but is it not mistaken kindness when we always do for them and fail to teach them to do for themselves and others? Are we not encouraging selfishness in them when we carry their burdens and make life too easy? Will not the cares be all the harder when they do come?

Experience is a good teacher, but her lessons are hard ones; and if we could but learn some of these things

from others, our own and our children's paths would be much brighter and broader.

We become narrow in views when all social life is cut from us, and our children learn to feel that mother is rather behind the times in her ideas if she does not get out into the world occasionally. So the mother who limits her life to the walls of her home is doing an injustice to both herself and her family. The home is the greatest thing in the world and should be the dearest place to every one in the family; but the home-mother, to be well, must get the fresh air and sunshine; to be contented, she must see other homes and children in contrast to her own; to be broad and tolerant, she must see something of human nature outside of her little circle; to be charitable, she must see those less fortunate than herself; to be wise, she must study and read; and last of all, to be appreciated, she must go away on a visit once in a while. We especially commend this last suggestion to the mother whose family has become so dependent upon her that they do not realize their own incapability, or her generosity. A lesson of this sort sometimes works wonders.

PROPER TRAINING OF CHILDREN ESSENTIAL.

Where children are taught to help in the work of the home, such a lesson is rarely needed, as their co-operation shows them what the labor of housekeeping really means. Children love to help when they feel that their help is a kindness that is appreciated; not a task that must be done. When children make mistakes through inexperience and ignorance, we should encourage them to try again rather than scold and repel their loving helpfulness.

Of course, it is much easier to do the task than to instruct the child to do it, but we increase his independence when we teach him. Many hands make light work, and all the family combined may lessen the daily tasks very materially, and still leave plenty of time for fun and frolic. A word of praise occasionally is a great incentive to a child and the outspoken appreciation will do wonders to encourage childish effort.

The father in the home can be of great assistance to the mother in household matters. He need not go out into the kitchen and wipe dishes in order to do this (although it won't hurt his dignity a bit to do it oc-

asionally when the mother is tired out); but he can give her his moral support by encouraging the children rather than letting them feel imposed upon. A father who makes fun of his boy for peeling the potatoes is either a very stupid or very selfish man. No man or boy is less manly for helping mother.

In too many homes nowadays the young people carry themselves as though living in hotels at about three dollars a day. They are absolutely independent in manner and action and seem to consider home as simply a place to sleep and eat. Is that all that the word home is to mean to the coming generation? It certainly will be if we bring our children up to feel that the home is run solely for their comfort and convenience. They are not responsible for these ideas; it is the fathers and mothers who are most self-sacrificing who makes this possible; and the boy who respects his parents most is the boy who works with them and who shares their joys and sorrows rather than the one who sits back and lets them wait on him. When we visit homes where we see school girls and boys who lie in bed in the morning until just time to get their breakfast and then go off to school, while the mother has all the work to do, we do not wonder if they complain when any task is required of them. The less they do, the less they are willing to do, and the child of whom no help is required will be the least ready when necessity arises. Children are very important, very necessary to our happiness and a home without children is indeed unfortunate, but a home without a mother is no home at all. So the mother should be considered first, for on her depends the happiness and comfort of the family.

Women are much more conservative than men and slower to take up new ways. We do certain things because our mothers and our grandmothers did, and that better ways may be found, we rather question. When we consider the wonderful advances that have been made in other industries, we do not wonder that Miss Jane Addams so aptly referred to housekeeping as "the one belated industry." Surely we must wake up to modern methods and profit by the experiments being made for our benefit, in many ways. The agricultural school, the universities, the government experiment stations and the recent domestic

science books and magazines all give their share to lighten our labors and increase our understanding. It is the woman behind the times who fails to profit by these opportunities.

The woman whose time is so wrapped up in art, literature or music that she has no time for household affairs is either unfortunately educated or unfit for her responsibilities. Not all women are fitted for home-makers, perhaps; but all women can learn the practical side of home life if they will. There is no wonderful talent needed to be a good housekeeper, but much learning and skill may lighten the labors. When we "make our heads save our heels," as the homely old proverb says, we are doing our work intelligently. The labor of the hand alone is mechanical; when the head guides the hand the labor has both skill and dignity. No matter whether one is painting a picture or scrubbing a floor, writing a book or sweeping a room, the act is only drudgery when no brain work is back of it. When we do work well we enjoy it and if we enjoy it we must do it well. Our own consciences accuse us when we fail.

Some housekeepers are more nice than wise and make home such an uncomfortably clean place that no one is inclined to stay there. If our children can't have good times at home, they will go elsewhere, and unless they are allowed to bring their friends in and romp as children love to do, they cannot feel that home is the best place in the world.

To improve our home conditions we must have a new ideal to which we strive. An ideal home does not mean a place with lots of expensive furniture which needs much care, a fine wardrobe which needs many stitches and much work to keep in order, a lavish table which taxes strength, pocketbook and digestion, nor a number of servants who rule the house with impudent and ignorant service. The ideal home is a place that is healthful, comfortable and pleasant. To be a healthful place it must be cleanly, and to be easily kept clean means a simplification in furnishing.

When we have furnished our home wisely and according to our means, we must then consider what is most needed to keep the home in a wholesome condition. First of all, we cannot overestimate the value of sunshine and fresh air. People in the country can have it for the asking; city folks must pay for it, the rents usually ranging according to the lightness of the rooms and the sunny exposure. Yet those who are in the country do not always profit by all its advantages. Fear of fading carpet and furniture often induces us to shut out the sunlight, and a dread of catching cold causes us to keep out the fresh air in cold weather. We forget that health depends less

upon the temperature of the atmosphere than it does on its purity, that air which is breathed over and over again is filled with impurities and has become harmful instead of beneficial. Thorough ventilation goes a long way toward the prevention of disease, and our forefathers who loved an open fire-place were wiser than they knew.

Another phase of home life which might be greatly simplified is the table. We all enjoy good things to eat when in normal health, and it is only right that we should do so. Why were we given a sense of taste if it were not to be considered? The trouble usually is that our sense of taste has become over-educated or perverted, and we often crave foods which are unwholesome because we have not always been well fed in the broadest sense of the word. We need variety in our diet, but not a great variety at one time, and we forget this fact when we load our tables with articles, each good itself, but together forming a combination that is unwholesome and disastrous. When we provide a great variety of foods for a meal, we are encouraging waste of several kinds. There is first a waste of money (for even where all is saved to be used again it cannot be so economically used as originally), then there is a waste of time and energy in preparing more than is required, and last, but not least, there is the waste which means a tax on your digestive system, either by the use of too much food or too great a variety. We all wish to be hospitable; we like to be considered good providers and we sometimes let false pride stand in the way of living up to what we know is best. We are afraid to change our methods for fear that others may think we are close; and rather than cause outside criticism, we continue to do that which our own better selves must criticise. We cannot bring about any sudden improvements with success; we must make changes gradually if we would have them permanent. As Mark Twain very aptly says, "You can't get rid of a habit by throwing it out of the window; it must be coaxed gently down the stairs, one step at a time."

Tried and Found True.

SCALLOPED POTATOES.

Use cold boiled potatoes sliced rather thick. Make a white sauce of two tablespoonfuls of butter, two tablespoonfuls of flour, and two cups of milk. Put the potatoes and sauce in a baking dish in alternate layers, seasoning with salt and pepper. Cover with buttered crumbs using one tablespoonful of butter melted and one cupful of crumbs. Bake from twenty to thirty minutes.

FRIED SALT PORK.

Cut the pork in thin slices; dredge with flour; cook in a hot frying pan with a very little fat. Turn often until brown, then cook more slowly. Cook 8 or 10 minutes. Take up the pork, add flour to the fat in the pan until thick; then pour milk in gradually until the sauce is of the desired consistency. Cook three minutes; serve in separate dish.

Kootenay Steel Range

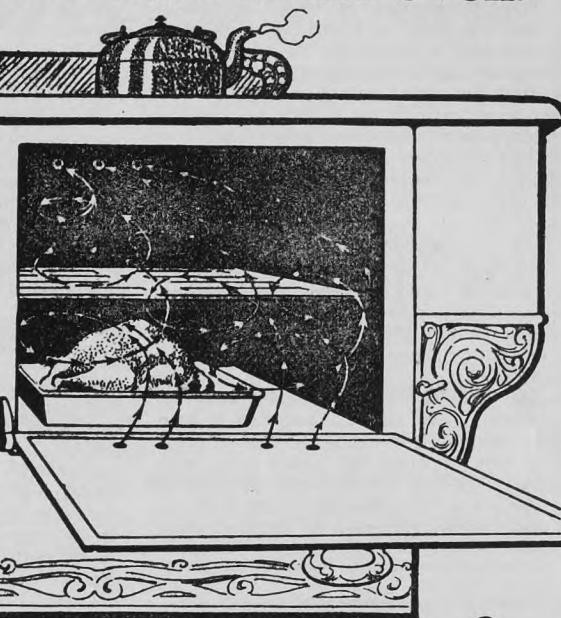
Fresh air is introduced into the Kootenay oven through a series of vents at the bottom of the oven door, and the cooking fumes carried out through another series of vents at the back of the oven.

(Arrows in illustration show method of ventilation.)

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CELERY AND CABBAGE SALAD.

Take equal parts of chopped cabbage and finely cut celery. Make a dressing of one cup of sour cream, one tablespoonful of sugar, one-half teaspoonful of salt, one-half saltspoonful of white pepper, and one tablespoonful of lemon juice. Mix the dressing with the vegetables and garnish with celery leaves.

CHICKEN COTTAGE PIE.

Remove the meat of a cooked chicken from the bones, and cut or chop it. Put in a baking dish, with half a cup of thickened gravy to each cup of meat, and season. Boil and mash six potatoes and spread over the chicken. Bake 20 or 30 minutes. Other cold meat may be used, also cold mashed potatoes, heating them first with a little milk.

FRIED APPLES.

Wipe the apples but do not pare them unless the skin is tough. Cut in slices across the core. Cook in pork fat or drippings until tender, turning carefully so that the circles do not lose their shape. Use as a garnish for the pork. Or cut the apples in thin slices around the core and let them cook soft, stirring frequently. Heap in the center of the platter, and lay the slices of pork around.

MAYONNAISE DRESSING.

The yolk of one egg, one-half teaspoonful each of salt and sugar, one-half saltspoonful of paprika or a speck of cayenne pepper, one teaspoonful each of lemon juice and vinegar, and a half cupful or more of olive oil. Mix the sugar, salt and pepper, stir in the yolk, then add the oil a few drops at a time till too thick to stir. Thin with a few drops of lemon juice, then put in more oil, alternating with lemon juice and vinegar until all the acid is used and the dressing is as thick as desired. Use on vegetable, fruit, or meat salads.

COFFEE CAKE.

One cup of butter, two cups sugar, one cup molasses, one cup cold coffee, four eggs, four cups flour, one teaspoonful each soda, mace, and cloves, two teaspoons cinnamon, and one pound of raisins, seeded. Cream the butter and add the sugar, molasses and spices. Beat the yolks of the eggs, and add them; dissolve the soda in the coffee and add that in alternation with the flour. Mix the raisins with the last of the flour and finally beat the whites light and fold in. Bake slowly thirty to forty minutes.

BOILED FROSTING.

One cup of granulated sugar, one-third cup of water, white of one egg. Boil the sugar and water without stirring until it hairs or threads when tried. It will take about six minutes. When the sugar begins to boil beat the white of the egg stiff, and when the sugar has boiled to the right degree pour it slowly on the beaten white, beating all the time. Beat till stiff enough to put on the cake. An ounce or one square of Baker's chocolate may be melted over the teakettle and added during the beating.

BOILED CREAM FROSTING.

Two cups granulated sugar, three-fourths cup of cream. Boil fifteen minutes, beat until thick, spread on the cake while warm. This is not as white as an egg frosting, but it is suitable for a dark cake, such as the coffee cake given above. If cream is not at hand milk can be used, adding a tablespoonful of butter.

GRAHAM BISCUIT.

One pint of graham or whole wheat flour, one-half teaspoonful of salt, one teaspoonful of sugar, two teaspoonsfuls of baking powder, one-half tablespoonful of butter and one scant cup of milk or water. Sift together the dry ingredients and work in the butter; see that the oven, the tin, cutter and rolling pin are ready, then add the liquid, mix as little as possible; turn out on the board, roll, cut, place in the tin, and bake a little longer than white biscuit.

BROWN SAUCE.

Another sauce may be made by browning the fat, adding the flour and browning again, then add the water. This may be used for many sorts of dishes made of the dark meats, and the fat may be some of the fat of the meat. The beef drippings generally kept on hand by a thought-

ful housekeeper, may serve as the fat for almost any brown sauce. Additional flavor may be given, especially where the stock is not on hand, by cooking chopped onion or onion and carrot for some time in the fat, being careful that they do not burn. Stock is better for this sauce than water. Chopped olives may be added, making quite a pretentious dish when served with a plain broiled steak. This is good also with duck.

WHITE SAUCE.

Butter, flour and milk make the ordinary, but exceedingly useful White Sauce, which is good with "fish, flesh or fowl." It may be served suitably with many vegetables, sweetbreads, oysters or eggs, or on toast. It may be enriched by being poured hot onto the beaten yolk of one or two eggs, and this made and served with baked potatoes is an admirable and sufficient evening meal without meat. By using half milk and half white stock, we have the sauce called Bechamel.

TOMATO SAUCE.

For Tomato Sauce which cannot be excelled for croquettes, fried fish, mutton chops, etc., use strained tomato or stewed tomato, straining it after it is finished. Cook with the tomato a little chopped onion, a sprig of parsley, two cloves and a bit of bay leaf, or laurel. For macaroni, omit the spices and the vegetables also if preferred.

Experience Extracts.

Linseed oil well rubbed into oilcloth will make it last twice as long. Wipe it off well and let it dry before using.

To mend the knees of short pants, rip up the seams, cut off the worn out part and sew the piece straight across; sew up the seams, hem and press. This is much better than putting on a round patch.

A cupful of vinegar placed on the stove when cooking onions or fish will permeate the kitchen with an aroma that will do away with all unpleasant odors.

If the flatirons have become rusty, rub them thoroughly with lard and beeswax and then with sandpaper. They should always be kept in a dry place.

Do not leave the old calendars hanging on your walls. There are plenty of pretty new ones, but one is sufficient for a room. If you wish to preserve the pictures cut them out and mount on cardboard.

There are hundreds of little things that a husband can do to lighten the housework, if you only give him a little encouragement. Never refuse his help, even when it seems to be a hindrance. Show him that you appreciate his help and that it lightens your labor. Do not be too ready to do things that the men and boys can do just as well, and do not be afraid to ask for a little help when you need it.

To put away sausage so that it will keep, pack it in gallon or half gallon crocks, press it down firmly but do not fill too full. Put the crock into the oven and cook slowly until the sausage is brown on top and covered with melted grease. Remove from the oven and let cool. If the grease does not quite cover the sausage, pour on more until it is half an inch or even an inch thick, tie heavy paper over the crock and keep in a cool place.

To sugar-cure meat, rub each piece with salt and let drain over night and then pack in a barrel. Make a brine of 8 pounds of salt, 2 pounds of brown sugar and 2 ounces of saltpeter dissolved in four gallons of water. Boil and let cool and pour over the meat. This sugar-cured meat is very sweet and delicious. It fries a golden brown and is much nicer than that salted in plain brine.

Very beautiful rugs are made of sheepskin, and although it is a good deal of work to prepare the skins, one is well repaid for the trouble, as they will wear for years.

To prepare the skin for a rug, soak it in a tub of water several days, wool side down, and weighted with rocks. When it is taken from this water plunge it in a tub of hot soap suds to which a little lye has been added, and let it remain until

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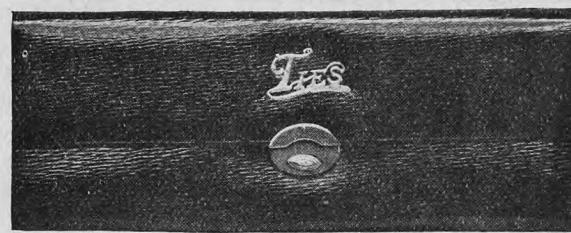
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the water is cool and then rinse thoroughly. Tack it to the side of a building, wool side down, and scrape with a dull knife until the skin is smooth, and then scour it with a piece of pumice stone until it is soft and pliable.

Now trim the rug to the required shape, tack it to a smooth surface and brush the wool thoroughly with a brush made purposely by driving two dozen small wire nails through a piece of wood, one end of which is left for a handle. Card and comb the wool until it is smooth and silky, and then it is ready for the dye.

Make the dye as directed on the package and have it boiling hot. Fasten a loop of cord into each corner of the rug to hold it by, and after moistening the wool dip it into the dye, passing it back and forth until of the desired shade, then rinse and hang in the shade to dry.

Large rugs may be made by using more than one pelt, and every bit of the skin may be sewed together over and over and pieced onto the larger pieces.

The rugs may be left all white, or the center may be white and the border blue. Dark red ones are very rich looking, and a rug with white center and dark red border is very pretty.

The paper used by the large mail order houses in their catalogs is so much thinner and softer than ordinary newspapers, that I always save the out-of-date catalogs for use in the kitchen. Hung near the stove a leaf is always ready to wipe off anything accidentally slopped over, while for wiping out grass from all sorts of pans before washing it is just the thing, and helps much in keeping the dishwater clean.—Western Cook.

There is no more satisfactory way of using up old stockings than to work them into rugs. As everybody knows, the feet are the first to wear out, and the result in many households is a pile of stocking legs which the housekeeper hardly knows how to use to good advantage. In cutting stockings for rugs, begin at the top and cut about an inch wide, round and round, all in one piece. If you cut in this way, you will not need to do so much sewing as you have to do if you cut the stockings in numerous strips. Black stockings make a pretty rug with a yellow or red border woven in. These rugs may be knitted or crocheted, or sent to the weaver.—Mrs. M. A. P.

A "nerve" pillow is something which physicians are said to recommend and which can easily be made at home. One needs only to gather or buy a quantity of dried soporific herbs, such as hops and catnip leaves, bayberry and sweet fern, adding to them sweet grass, balsam pine and as many sweet smelling sleepy things as one can think of. Dry and powder and mix all together. Then fill your "nerve" pillow with the summerwood satchet powder thus formed. Stuff the pillow with down or cotton batting or feathers, and either scatter the powder thick through the filling or, what is better, make flat satchet bags and fasten them securely to the inner sides of the pillow.—Ex.

Although Christmas is yet some distance away, it is time to begin to plan the presents which are to be "the work of our hands," and we will be very glad to receive descriptions of hand-made articles suitable for Christmas gifts. Any suggestions concerning Christmas entertainments may be sent also. Every year we receive several articles on these subjects too late to be of any use, and therefore mention the matter thus early to remind our friends to send their articles in time.

Save all the jam, jelly and preserves left in small amounts in your preserve dishes from time to time and keep in a jelly glass. Many people throw away the left-over jelly or put it in vinegar, but a much better use may be made of it in the following recipe: One to a cup of jam, one of flour, one of sugar; the yolks of three eggs well beaten, one-half cup of butter, one level teaspoonful soda dissolved in three teaspoonfuls of sour milk. Season with spices to taste and bake in a hot oven. This makes a delicious pudding served with a little hot sauce. It also makes a delicious cake when a little more flour is added.—D. A. W.

An easy way to remove putty from window frames is to pass a red hot poker

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over it. The putty becomes soft and can be easily picked off the frames.—Mrs. D. L.

Though this way of keeping lemons is an old one it may be unknown to some of the readers: Put the lemons on a shelf in a cool place and turn a jelly glass over each one. They keep for quite a while.—C. D. M.

To a wound from a rusty nail apply a poultice of bread soaked in milk, squeezed nearly dry and covered with sugar. This will suck out the poison and leave the wound perfectly clean. Bind up the wound and keep it free from all contact with foreign substances.—Mrs. W. S.

USES OF THE POTATO.

The common Irish potato has many uses besides that of food. There is no better or more cooling poultice that can be applied to a sty or inflamed eyes than raw potato finely scraped. Renew when it dries and let the last remain on over night.

A pretty butter print may be made from a raw potato, cutting it in half and cutting a leaf or any pretty design on the flat surface with a sharp pointed knife. The butter does not stick to the potato, and it is convenient for stamping individual pats, as well as large rolls.

A raw potato cut in halves and rubbed on the marks, will remove mud stains from black garments.

RUGS AND CARPETS.—Several years ago economical housekeepers would have several extra yards of carpet woven when they were having a carpet made, to use for a rug in front of the fire, but now they save the prettiest woolen and cotton pieces and have them woven in pretty rugs. A handsome rug of this kind recently seen was made with a hit or miss center and striped border. Faded woolen pieces had been colored bright colors and plenty of black and pretty dark colors were mixed with the bright shades.

Pretty rugs also can be made by using paper flour sacks in the place of rags. These rugs can not be washed but stay nice a long time. Heavy fringe made of several colors of carpet warp and sewed to the ends of the rug, makes a pretty finish and are quite easily made.

BROILED HAM—Cut the ham in slices of medium thickness, place on a hot gridiron and broil until the fat readily flows out and the meat is slightly browned; take from the gridiron with a knife and fork, drop into a pan of cold water, then return to the gridiron, repeat several times and the ham is done; place in a hot platter, add a few lumps of butter, and serve at once. If too fat, trim off a part; it is almost impossible to broil the fat part without burning, but this does not impair the taste. Pickled pork and breakfast bacon may be broiled in the same way.

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C. T.



When Mother's Gone Away.

Our mother's gone to Auntie Lou's
To stay till the week's end,
And Cousin Grace has took her place
To bake and sweep and mend.
Somehow we don't hang 'round the house
But stay outdoors and play,
There seems a gloom in every room
When mother's gone away.

An' one day when I felt so queer
I left the dogs and swings.
Out in the hall I found her shawl
Where hangs the coats and things.
I put it on and wore it 'round.
Jim called "Girl-boy!"—but say,
It felt like she was there with me
Instead of gone away.

To-day I did'nt want no pie.
Pa laughs, then gives a frown,
An' says, "Dear me! what can it be?
We'll send for Dr. Brown"
And then a lump comes in my throat,
I cry an' cry, an' say,
"Tain't that. It's 'cause—it's 'cause
it's 'cause—
'Cause mother's gone away."

—ALICE T. OEATON.

Nature's Wonder Ball.

(By PEARL RICHMOND)

"A letter from Queen Sunshine," exclaimed Jack Frost, raising his icy eyelashes in surprise, as he eagerly opened a tiny little envelope.

"I wonder if she needs me for anything! I am getting so tired of my long vacation. It is time to begin work again. I think the summer down there has been long enough," and Jack Frost read the following note:

Dear Jack Frost,—

General Bumble Bee, Miss Grasshopper, Captain Polliwog and Lady Bug called on me yesterday and asked me to begin preparations for the annual ball.

They say that for several days the oak leaf boys and poplar leaf girls have been whispering unkind remarks because no preparations have been begun. Their veins just tingle with desire to dance, and Madame Butterfly declares she will not oversee the making of the gowns unless work begins immediately.

Chief of Police Blue Jay says his men are all carefully trained to keep the people orderly and under no consideration will bugs and birds be allowed to enter the decayed fruit and vegetable saloons for intoxicating drinks, because last year Mr. Fly and Captain Cabbage Worm were so drunk that they frightened Lady Bug into a fit.

The Chief of Police says he will have General Crow with his men stationed all around Pumpkin Brewery so that no one can get in there for drinks.

Mr. Tobacco Bug will not be allowed at all because his breath was too offensive to the ladies last year.

The Bird Orchestra has prepared excellent music, so, Jack Frost, we are just waiting for you to come to manage everything, because the Bird and Bug Banquet can never be held without your management.

Hoping to see you soon. I am,
Your obedient,

QUEEN SUNSHINE.

Sunbeam Mansion, November 1st.

"Well, I certainly am pleased to receive this long expected letter. They cannot get along without me, after all," said Jack Frost, buttoning up his white fur coat.

"I will call all of my fairies together and we will leave this evening for Sunshine Land," he continued, blowing his icy trumpet.

Immediately a hundred thousand Frost fairies stood before him—each fairy wearing a clean new suit just covered with sparkling pearls and diamonds.

"Now, my good fairies," he said, admiring with pleasure their cleanly

appearance, "I want you to take your pails and go to Rainbow Land and fill them with a thousand different shades of colors. You understand how to get them from the fountains of Rainbow Land."

The fairies all bowed low and smiled.

"Then hasten, good helpers, there is no time for delay now."

Immediately the fairies bowed themselves out of the presence of Jack Frost, and gathering their pails flew to Lake Purity, in Sunshine Land, and filled their pails with its sparkling waters.

Queen Sunshine had her Sunbeam horses waiting for them and they quickly mounted them and galloped up, up, up to Rainbow Land.

There King Rainbow sat on his golden throne in his wonderful flower garden, looking sadly at the dry fountain in the center. Presently he heard the sweet musical orchestra of the Frost fairies.

Then turning around he saw the glad faces of a thousand little fellows.

When they saw him they waved their pails and cheered.

How gladly he welcomed them! After bowing very low they flew

to the fountain top and oh, how dry it seemed as the scorching sun beat upon it!

King Rainbow said, sadly:

"Dear Frost fairies, we are parched for water here. I have not put a rainbow in the sky for a long time, because you see there is no water in the fountain and I cannot make a rainbow without water."

So the Frost fairies all poured the water from their pails over the top of the fountain and soon it danced down over the statue in a thousand sparkling colors to the base of the fountain.

The fairies then hurried down and filled their pails with the beautiful water all colored red and blue and violet and orange and green and—oh a thousand other shades.

How pretty they looked there at the foot of Rainbow Fountain, dancing and singing and bowing in turn to King Rainbow.

After they had filled their pails the water rushed down from the top in great streams, for they had started the water flow, so now it would dance and sparkle over the statue for another year.

After bidding King Rainbow a glad good-bye, they mounted the Sunbeam horses and galloped down to Sunbeam Mansion.

Queen Sunshine stood at her gate waiting for them.

Such a happy greeting you never saw. Queen Sunshine kissed every little fairy and then sent them to the fields and the woods and the gardens and the hedges to paint the gowns and color the coats of the leaves and grasses and flowers that were invited to the Bird and Bug Banquet.

Every leaf and every grass wore a different kind of dress from any other.

Think of it!

No two dresses were alike!

Was there ever known such a brilliant dress affair!

(Just look, dear children, and see if you can find two leaves of a tree colored exactly alike after Jack Frost's fairies have touched them.)

Well, by night, the gowns and coats were all done beautifully.

The Maple Leaf girls, Oak Leaf boys, Poplar ladies and a hundred other tree families all put on their dresses and coats for Nature's Won-

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der Ball that ended with the Bird and Bug Banquet.

Now, while the Leaf and Grass people were dressing for the ball, the Birds and Bugs were laying the great banquet table.

Mrs. Busy Bee brought pounds and pounds of nice comb honey. Little Mrs. Ant and her daughters carried baskets of bread, and cake from the pantries and kitchens of careless housekeepers.

All of the Worm housewives brought dishes of tomatoes and cabbage and cucumbers from the great farm gardens.

One worm brought onion salad, another cauliflower pickles, another squash pie and still another carrot soup.

Mrs. Potato Bug brought bushels of mashed potatoes.

While the Worm and Bug women laid the table the Worm and Bug men filled pitchers with good cold water, and the flowers sent their prettiest children to be placed on the great table where they could talk and tell stories to amuse the guests while they ate.

In fact, they gave all the toasts.

While the Worm and Bug people prepared the great feast all the birds decorated the great banquet hall. They placed the bird orchestra on a great stage of flowers, and fancy autumn vines tied and fasened about made a dream of perfect beauty.

As there was never a discord in this Bird Orchestra, their surroundings must be harmonious in every detail.

Soon all preparations were complete.

The sun set.

Every fleecy cloud had been chased out of sight.

The East and West and North and South winds were all sleeping.

Everything in the world was quiet and not a sound could be heard.

The clock struck eight, nine, ten, eleven o'clock, then Jack Frost arose and put on his dress suit of spotless white fur covered with dazzling diamonds.

The Frost fairies all clean and happy, flew to every leaf and grass

and escorted them to the great Banquet Hall.

They dropped pearls and diamonds all over the earth on their way.

Soon all were gathered at the great annual meeting.

The orchestra sounded the opening call and the most graceful dancers in the whole world performed the most intricate steps that eye has ever seen—for this was Nature's Wonder Ball.

They danced till near the dawn of day, then they all gathered around the great banquet table and enjoyed the most wonderful feast at Nature's Wonder Banquet.

They ate and laughed and talked.

It was a feast without a flaw.

No jealousies marred the feast, no quarrels spoiled the evening.

All were honest and peaceful and lovely, because it was Nature's feast.

It was a gathering of beauty that the Creator had made.

It was His Master stroke on the year's great painting.

As a few rays of light announced morning's dawn, the leaves and grasses noddde a faint "Good Morning, Winter," and fell to the ground to sleep undisturbed for a long, long slumber.

The birds flew to the South and the bugs and worms disappeared somewhere.

Thus ended Nature's great annual Wonder Ball, and as the sun climbed out of her bed to bid "Good-Morning" to the young winter morning, the whole earth glistened with the pearls and diamonds that were dropped by Jack Frost and his fairies on their way to the farewell autumn revel.

Cousin Doris Letters.

Lumsden, Sask., May 4th, 1907.

Dear Cousin Doris,—This is my first letter to the Canadian Thresherman. My brother takes it and likes it fine, so does my father like it.

I have five sisters and three brothers older than I am. I always read the boys' and girls' letters as soon as that paper comes. I only go to school in the summer. I am in the fourth book. We are getting a school near our place.

We live four miles from a little town called Lumsden. It is a very pretty little place. It is situated in Qu'Appelle valley.

It is very pretty in summer and trees growing on both hills it also has.

The Qu'Appelle river running through it. The river is very high this spring but it did not overflow its banks. We have to cross it going and coming from our place. We have 160 acres of land. We have three horses and twelve head of cattle and some hens and pigs.

There are all kinds of wild fruit here some years. Last year the strawberries were very plentiful, we picked about twenty quarts. There is a lot of wild flowers. The first flower that comes out is the prairie lily and then the prairie roses come about June, but the rose bushes are out before then. I think the bush roses are the nicest. They have such a sweet perfume.

There were some terrible snowstorms last winter. There was about two feet of snow on the level. We expected a flood this year but it did not come as the snow went away very slowly. The last flood we had was in 1904. It lasted on about five weeks.

We have two dogs and two cats. One of our dogs is very old and very wise. I will close, wishing you success.

RUBY WALACE, age 14.
Lumsden.

Estevan, Sask., May 3, 1907.

Dear Cousin Doris,—This is my first letter. We live fourteen miles from Estevan. My papa takes The Thresherman and Farmer. I like to read the girls' and boys' pages very much. I have three sisters and two brothers. My youngest sister is one year old. We think she is just about right. We drove a team of ponies to school last winter. I am in the third reader and take reading and spelling and arithmetic and grammar and geography. We have eighteen head of horses and sixteen head of cattle. We have chickens, turkeys and ducks.

Papa owns a J. I. Case Threshing outfit, and when he goes threshing my older brother and I go to school, and at nights do the chores. We had a hard winter up here on account of having so much snow, and we are behind with the spring's work. From your loving cousin,

FRANKIE WHEELER, Age 11.

Neepawa, April 13th, 1907.

Dear Cousin Doris,—I see that a lot of the young folks are writing letters to you, so I thought I would try and write one too.

I am nine years old and will be ten next May. My home is in a place called Inkerman, which is just seven miles from Neepawa, and our nearest town is Arden.

We have a large frame house and it is painted white. There is a furnace and a basement in it. We have a lot of potatoes and a cistern in the basement. Sometimes I get up on our front veranda where we can see nearly all over the country. The Riding Mountains are nearly thirty miles away but they seem near. They are very pretty on winter mornings when the sun shines on them. Sometimes they are dark-blue color and other times they are grey so that you can hardly see them.

We have a large frame barn which was built two years ago. In one part of it we keep the horses and in the other we keep the cattle. Up in the top we have a large hay loft where we have lots of

fun in the summer time by jumping off the rafters into the hay. I go to school every it. It is about a mile and a half from our place. There are thirty-six going to Inkerman school. The school is not very large for it only has two windows on each side. I am in the third book. Our teacher's name is Mr. Murphy.

I read quite a lot of books. The books that I like best are "The Wonderful Wizard of Oz" and "Black Beauty." Grimmes Fairy Tales are very nice, too.

While I am writing I think I will tell you about our dog, Captain. He is a very nice dog and never bites anyone. He is not very cross. Everybody says he is the prettiest that they ever saw. He is three different colors—black, white and yellow. His hair is very long.

I should like very much if some of your friends would write me a letter. They would get an answer right back if they did. I will have to say good-bye. From your cousin,

GRETA NELSON,
Neepawa, Man.

Dear Cousin Doris,—This is the first time I have written to the boys' and girls' page, in which I take much interest. We have taken the Canadian Thresherman and Farmer for a couple of years.

We live five miles northwest of the village of Lenore, which was built five years ago, and is quite a lively little town. It has a large skating rink in which the town girls and boys spend their Saturday afternoons.

I attend school almost every day. I just have half a mile to go. I am in the fifth grade. My favorite studies are drawing and composition.

Many of the cousins describe the country around their homes, so I think I will describe the country around mine. It is mostly prairie and pretty level. There is one large hill about four miles east of us and a small range five miles north of there. Quite a few sloughs are dotted over the prairie too.

Many people around here are leaving and going to Sask. and Alberta to take up homesteads.

I have many pets, two dogs and three cats. The dogs' names are Collie and Topsy, and the cats are Flossie, Kit and Roamy. Your cousin

Lenore, Man. MAY POLLOCK.

Yorkton, Sask., May 8th, 1907.

Dear Cousin Doris,—This is my first letter to the Canadian Thresherman and Farmer. I like to read the boys' and girls' letters very much. I am thirteen years old and have two sisters and six brothers.

We have six turkeys, seven geese and quite a few chickens. We have four hounds, one watch dog and one collie dog, fifty head of cattle, fifteen horses and five calves.

We lived in Yorkton, Sask. ten years till March, 1907, and now we live on the farm ten miles from Yorkton. I think we will go back to Yorkton after a year or two as we have a large brick-yard there and our machinery. But I like it quite a bit better on the farm as the creek runs right through our yard, and it will be very nice in the summer.

Hoping to see my letter in print. Your cousin, MARTHA E. REUSCH.

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Shall I buy a disc or a mold-board plow? is a question frequently asked by the farmer. The condition under which the plow is expected to operate must help answer it.

All farmers are acquainted with the mold-board plow and know how to operate it to the best advantage. The disc plow, on the other hand, is a newer invention and has not been used so extensively. It is harder to operate successfully and, for that reason, has not given the general satisfaction which should be obtained. The use for the disc plow, however, is gradually growing, and in a few years it will have almost as large a place, especially in the western states, as the mold-board plow.

Under similar conditions, the disc plow is of lighter draft, but this difference is not so much as is often claimed by the manufacturers. Rolling friction makes it pull somewhat easier than sliding friction. Because of the rolling motion of the disc and its cutting effect, it is not so likely to clog as the mold-board plow. What the disc cannot cut it will roll over.

The disc is capable of plowing ground that has become too dry and hard for the mold-board plow. This is oftentimes of much value, as it is not necessary to wait for rain, and the seed can be planted at the proper time.

For humid sections and irrigated lands, the mold-board plow must be considered superior. Under favorable conditions for plowing where the soil is not too dry, the mold-board plow pulverizes and turns the soil more satisfactorily. It also handles sod to better advantage.

To do the same amount of work, the disc plow will require very little sharpening compared to the mold-board plow. This makes the running expense of a disc very much less than that of a mold-board.

The diameter of the disc should not be too large. A 24-inch disc for general use is to be preferred to one of larger diameter. The 24-inch disc will pulverize the soil more than a 28 or 30-inch one. The draft is a trifle more on the smaller one, but the difference is more than made up by the class of work it is able to do.

The disc should not cut too wide a furrow. It is far better to use two discs 24 inches in diameter, each one cutting 8 inches in width, than to use a 30-inch disc cutting 14 or 16 inches in width. Taking a narrow furrow tends to make the bottom less corrugated.

Plowing the same ground year after year with the disc does not keep it in so good a condition as if plowed with a mold-board plow.

The mold-board is generally considered best for humid and irrigated sections, and the disc plow for dry or semi-arid sections.

An old teakettle with the bottom cut out makes an excellent cover to place over irons heating on gas or gasoline stoves.

Don't go to bed without brushing the teeth, for it is at night that acid of the saliva gets in its work on the teeth.

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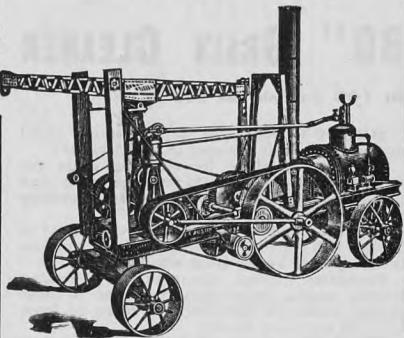
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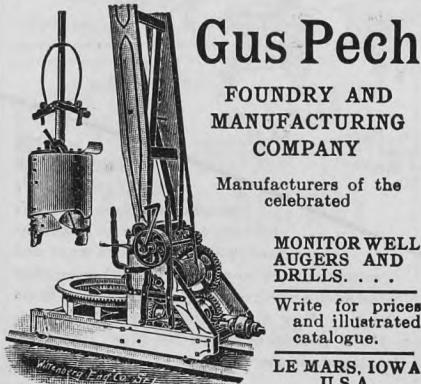
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Threshing In Canada.

(Continued from Page 17.)

placed there will be no benefit derived as they are all likely to be blown off by the first wind, leaving the stack in worse shape than if none had been attempted. Generally speaking, far too little attention is given to this most important part of the harvest work and perhaps farmers are somewhat to blame. Now that from year to year threshing from the stack becomes more general it would largely pay to have more attention given to this part of the work which in many instances would save grades and in every case would materially preserve the quality of the grain particularly when long exposure was required.

To the farmer with a limited acreage and who must wait an indefinite time for a mill, stacking may perhaps be the best course to pursue, provided stacks be well built and practically weather proof. Badly erected stacks, however, are in more danger of damage than are stacks in the field which have all the chances to dry out again, while a drowned stack will go from bad to worse. A stack of about six good loads is quite large enough and will make a nice sized erection if skillfully constructed, but after all the efficiency of the stack is more than the appearance, and all outside sheaves particularly, should have enough slope to throw rain; better still, if every sheaf in the stack has the right slant, but in dry, sunny days it takes good men to build a perfect model.

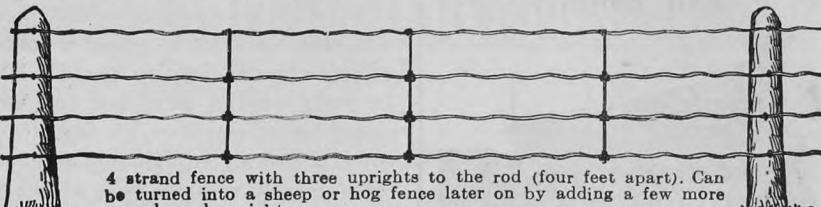
As a rule stacking is badly done, and after an excessive rain one has only to take a day's drive to see by dismantled stacks that good stacks are in a grave minority.

On account of expensive labour and difficulty in getting good stacking done, the system of threshing from the stack is becoming more practiced in the country. To meet this requirement one notes the large enquiry and demand for smaller threshing outfits and neighbor farmers joining together in many instances are solving the problem satisfactorily in a large measure for if conducted on business principles there is no reason why this method should not be a success.

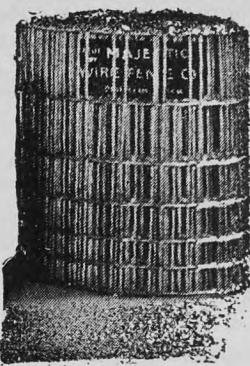
Large expensive outfits unless run by competent men are too often a source of grief and loss to the farmer and a spell of broken weather adds increased expense to the work and frequently threshing is resumed before the grain is in fit condition thereby entailing serious loss.

Farmers uniting to thresh their own crops would avoid all this trouble if men and teams lying idle at times, could resume work when stuff was in condition. The perfection of the gasoline engine will hasten this method of threshing and farmers will find it both convenient and profitable to do this work for themselves. To sum up after many years of stacking my crop, I found

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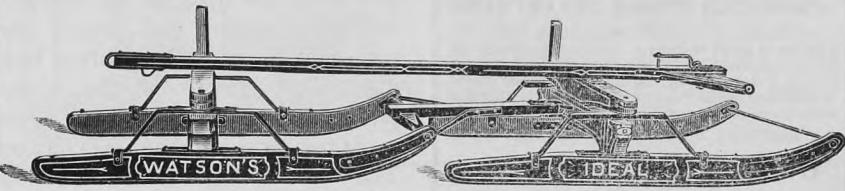
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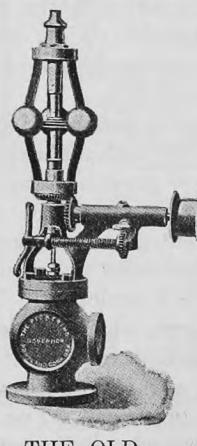
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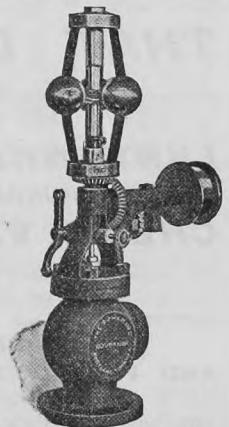
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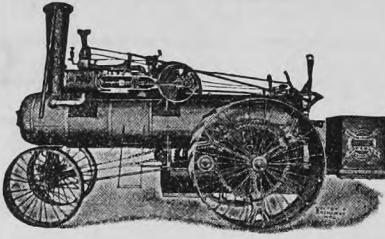
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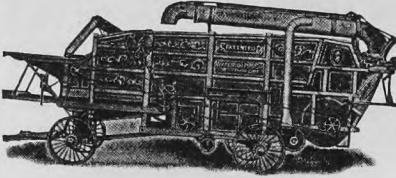
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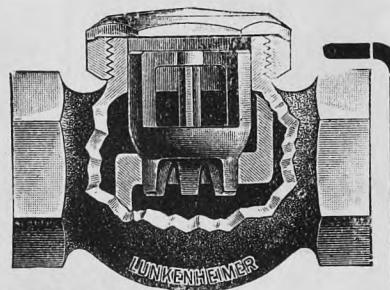
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that with larger acreages the work
became to arduous and expensive.
That a little attention to have stacking
done as well as possible largely
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having with a neighbor farmer a
machine of our own we can do our
own threshing to suit ourselves and
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stook will more and more be adopted
as settlement develops is certain,
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nomical than stacking.

Yours truly,
WM. LOTHIAN.

A Little Grain of Wheat.

(Continued from Page 4.)

was a severe frost, the earth was
frozen and with it the hatched and
unhatched grasshoppers. In a few
days it thawed again, but the pests
had gone, and the wheat crop was
saved from its enemies. It is true
that since 1877 there have been
no grasshoppers worth worrying
about in Minnesota.

Not only is the wheat family
assailed by disease and hostile
armies, but, should it escape these,
it still has to struggle for existence
because moisture and proper food
materials in the soil are often lacking.
The growth of the wheat-
plant from seed to maturity is one
constant series of chemical changes.
The various food elements in the
form of mineral matter, such as
potash, phosphate, lime and mag-
nesia salts, together with the water
and nitrogenous compounds, are
taken from the soil, while the carbon
is obtained entirely from the air.
The leaf is the manufacturing plant
or chemical laboratory where all
of the various changes take place,
and where the different compounds,
including starch, gluten, and oil,
are elaborated. The materials that
are produced in the leaf are finally
stored in the seed as nourishment
for the future wheat-plant. Cli-
matic conditions, the nature of the
soil, and the character of the seed
are the main factors which deter-
mine the properties and individual-
ity of the wheat.

Wheat grown on fertile soils, in
northern latitudes with a short but
forcing season of growth, develops
more glutinous matter and less
starch than wheat grown on poorer
soils and in latitudes where the
period of growth is prolonged. The
same general laws which influence
the growth and development of
animal bodies are also noticeable
in the growth of wheat. For ex-
ample, in all young and growing
animals there is first developed a
framework of bone and muscle
if proper food is supplied. After
the framework is developed the ad-
dition of more food causes the
animal to undergo the fattening
process. The animal will prema-
turely fatten if not properly fed.
So with the wheat plant, the earlier
stages of growth are devoted largely
to the building up of the nitrogenous
or glutinous compounds correspond-



All made of clean, strong
felt---that keeps the feet
"warm as toast" when the thermo-
meter drops to 40 and 50° below zero.

They have the snap and style and
character of the best leather footwear
—and wear better.

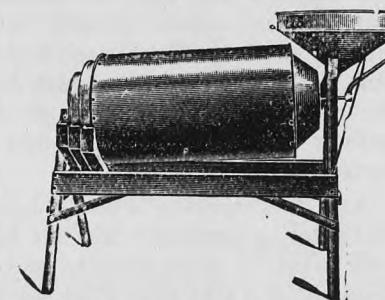
Insist on having ELMIRA SHOES AND SLIPPERS
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36

BEEMAN'S NEW "JUMBO" GRAIN CLEANER

Guaranteed Capacity on Wheat 100 bushels per hour



SOLD ON TRIAL; if not the most rapid
and perfect Grain Cleaner can be returned.

Just the machine for cleaning grain for

market on account of its large capacity and
perfect separations and an absolute necessity
in cleaning grain for seed

Separates wild or tame oats from wheat or
barley, and the only machine that will success-
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Separates frosted, shrunken, or sprouted
wheat, raising the quality from one to three
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The Jumbo cleans all kinds of grain and
seeds and separates perfectly all foul seed.
Furnished with bagger if desired.

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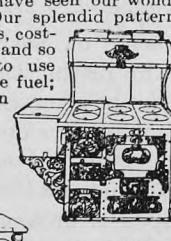
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Canadian Thresherman and Farmer



\$5.00

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ing to the framework of the animal; while the later stages of growth are given over principally to the formation of the starch, which corresponds to the fattening period of the animal. If the normal development of the wheat is in any way checked, the kernels may appear prematurely fattened and lack strength, or slightly shrunken and shriveled, because the fattening of the kernels has not taken place.

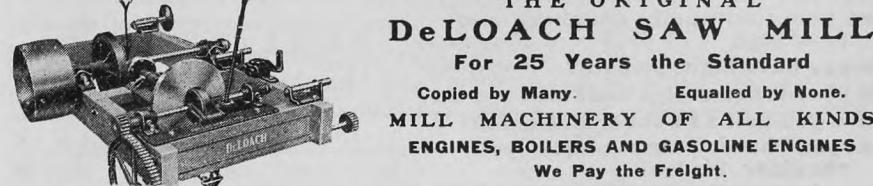
The chemical changes which take place in the leaves of the growing plant are the results of life processes, and, like all similar changes, are not well understood. As soon as the seed passes its germinating stage, which it does rapidly when grown under normal conditions, the roots and leaves are produced and then the food from both soil and air is absorbed and elaborated into plant tissue. By the time the leaves are five inches high the first roots are about twenty inches in length, and develop rapidly in all directions. Some appear to be especially designed to give mechanical strength and support to the plant, while each individual rootlet is covered with a large number of root hairs which come in contact with the soil and absorb food. These root hairs are thick or thin in places according to the amount of plant food in the different layers of soil. The spike, which later bears the grain, is discernible even in the early stages of growth, and develops within the hollow cylindrical stem which is connected by joints and internodes. If conditions are favorable, the grain "stools," and a number of stems or branches are developed. As the plant grows and larger leaves are produced, the earlier leaves become less active and give up their substance to the plant, the heads are unwrapped from their leafy covering and the grain passes through the various ripening stages to maturity. The blossoming stage is one of the most interesting periods in the development of the plant. The floret is complete in itself, having all the parts and organs of an ordinary flower, including ovule, stamens, pistils, filaments, anthers, and pollen.

Wheat is self-fertilizing, and at flowering time the anthers are pushed upward; they break open and the pollen occurs during fertilization, and a sufficient opening of the flowers takes place to allow occasional cross-fertilization. By means of removing the pollen from one variety of wheat to the ovules of another, cross-breeding is accomplished, which has resulted in the production of a number of new and promising varieties.

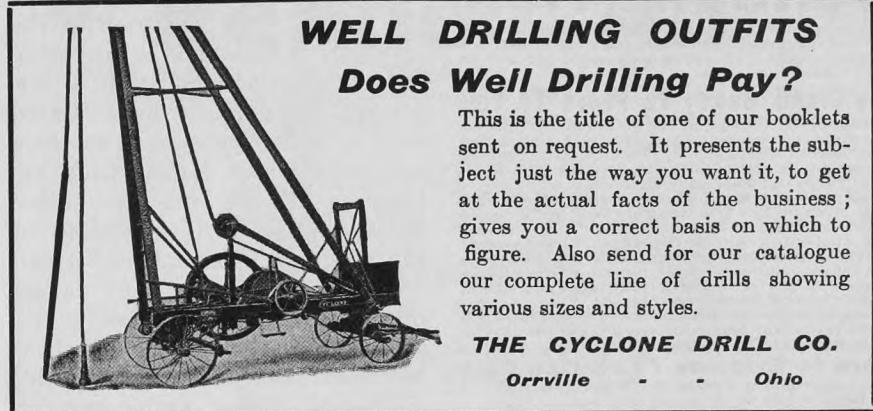
A mature wheat kernel is a single seed enclosed in tightly fitting walls. During growth the lateral portions of the seed fold inward and the seed elongates, forming a fold or groove upon its upper surface. The covering known as the bran scale consists of three parts: the outer skin



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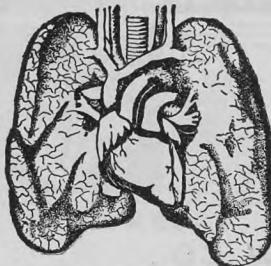
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It is not only a cure for Consumption but a preventive. If your lungs are merely weak and the disease has not yet manifested itself, you can prevent its development, you can build up your lungs and system to their normal strength and capacity.

Lung-Germine has cured advanced Consumption, in many cases over four years ago, and the patients remain strong and in splendid health today.

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Under date of Mar. 11, 1907, William Schmidt, 1907 Coleman St., St. Louis, Mo., writes: "It is now nearly four years since my cure of Consumption was made complete by your Lung-Germine, and I am happy to say that I remain as well and strong today as the day I was cured.

I am healthy and able to work every day."

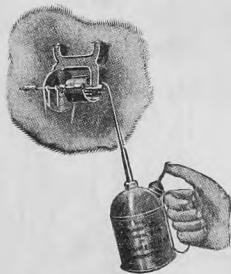
We will gladly send you further proof of many other remarkable cures, also a FREE TRIAL of Lung-Germine, together with our new book on the treatment and care of Consumption and Lung Trouble.

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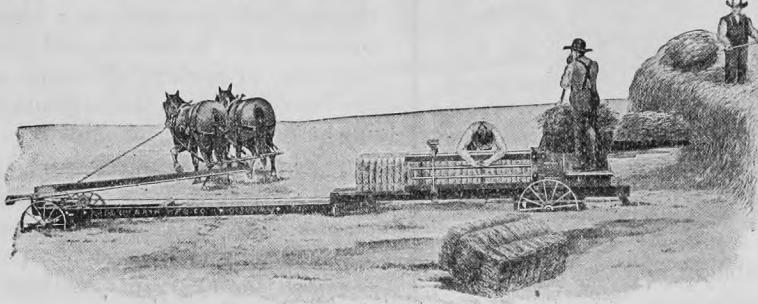
or coarsest part of the bran, an inner double skin, and a thin, hard, transparent layer. Inside of the bran, another layer of cells, called the aleurone layers constitute nearly eighty-four per cent. of the wheat kernel, of which about seventy-five per cent. is recovered as flour, which is composed of starch, gluten, and other nutriments. The germ, or embryo plant, is found at the lower end of the kernel, and is surrounded by reserved food materials. When the wheat is made into flour a mechanical separation of the different parts takes place, the germ and bran layers are removed, and the flour cells are granulated.

It is estimated that, under ordinary conditions, it will require about two square feet of land to produce enough wheat for one loaf of bread weighing a pound. Since the amount of wheat used in the aggregate is large, and is increasing faster than the population, a few political economists have feared that in a half century or so there will be a wheat famine from exhaustion of the soil and other causes. A careful examination of the facts do not warrant such a conclusion. There is no more danger of a wheat famine than there is of a grass famine, to which family wheat belongs. The extensive wheat fields of Canada are now coming into cultivation and are producing wheat in quantity and quality far beyond the most sanguine anticipations, from a source which only a few years ago was considered unproductive. Large tracts of land in the United States suitable for wheat-growing are still uncultivated. In addition to these resources, and the possibilities of Argentina and other wheat-producing countries, there is an enormous area in America formerly wheat-producing and now utilized for other and more profitable crops, which merely awaits the stimulus of a greater demand and consequent higher price to revert to wheat production. While such conditions exist it is impossible to estimate how long it will be before the limit of the world's wheat production is reached. There is every reason to believe that in the future the supply of wheat will increase, and that it will be more extensively used in the dietary than it has been during the past forty-six hundred years of its history.

A Campaign for Better Seed in Saskatchewan.

The success that attended the twenty-one seed fairs that Saskatchewan Agricultural Societies tried last winter warrants their being held again, their number and prizes at them increased, and if possible, their programme enlarged. This year, as last, the Seed Branch is prepared to do the following: To get out posters, folders and attend to the advertising generally. To supply a judge and a lecturer,

THE DAIN PULL POWER HAY PRESS



has advantages that the prospective purchaser of a hay press cannot afford to overlook. It bales the most hay with least labor. It is light draft. The power is constructed so that a compound leverage is obtained, producing tremendous force in the baling chamber. The Dain Press has no pitman for the team to step over. As the bales are delivered away from the stack nice, clean bales may always be obtained from the Dain Press. Built on the Pull Power plan the Dain Press may be set at the center of the stack or rick and the entire stack baled at one setting without cutting the stack in two.

With the Dain Press set at the center of the stack, one man can pitch to it as easily as two men can to the pitman press, which must be set at the end or corner of the stack.

The baling case is so mounted that the wiring and tying can be easily done from one side. With the Dain Press it is not necessary to get down on your knees in the snow or wet or to run around the press every time a bale is tied.

The rocker tucker on the Dain Press is an excellent feature; it automatically folds the overfeed, no matter how large it may be. Bales made with a Dain Press are always nice and smooth, load compactly, and to good advantage in cars, and are the choice of the market. Money cannot buy a better Sweep Press than the Dain. It is constructed of the best material throughout by skilled labor. Write us for special catalogue.

For special circular or further information write us
Your inquiry will have prompt and careful attention

DAIN MFG. COMPANY, Ottumwa, Iowa

"GREAT DAIN LINE"

THE FAIRCHILD CO., WINNIPEG, GENERAL AGENTS

The VULCAN IRON WORKS

LIMITED

WINNIPEG, Canada.

Manufacturers of Boilers and Engines, Elevator and Milling Machinery, Iron and Brass Castings.

Jobbers of Steam Fitting Supplies, Architectural and Bridge Material, Steam Pumps, Rubber Belting, Packing and Hose, Pipe and Supplies, Boiler Plate and Sheet Iron Boiler Tubes, etc.

Agents for
FAIRBANKS, MORSE & CO., Gasoline Engines.
Pumps and Scales.

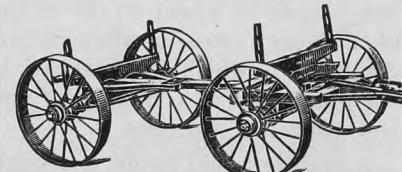
HUNTLY MANUFACTURING CO.,

Monitor Grain Cleaning Machinery

TAYLOR-FORBES CO., Sovereign Radiators and Boilers

The HANDY WAGON

Made by the
Dominion Wrought Iron Wheel Co. Ltd.
ORILLIA, ONT.



TUDHOPE ANDERSON & CO., LTD.
WINNIPEG, MANITOBA, and

A cheap wagon for the farm, made with wide-tire steel wheels, and built low to facilitate loading. Carries a heavy load, runs easy, and won't cut into the ground.

For the convenience of our customers in Western Canada, we have opened an agency in Winnipeg and Calgary, and always carry a full stock there. For particulars and catalogue, write

Please Mention this Journal when Writing Advertisers.

KENTUCKY DRILLS "As good as Wheat in the Mill"

Interchangeable—Disc or Shoe

The furrow openers are set zigzag, or in double rank, giving ample clearance for mud and trash.

The Kentucky Grain Drill

with its closed-delivery boot, insures the planting of the seed in a perfectly formed seed trench.

The seeding conditions of the Canadian Northwest are peculiar, and the Kentucky Drill meets all these conditions and makes seeding easy.

Kentucky Grain Drills

have many new and exclusive features that are fully illustrated and explained in our new catalogue, which we will be pleased to send you FREE. Write for it today.

THE AMERICAN SEEDING-MACHINE CO.
INCORPORATED.

283 James St., Winnipeg, Man.

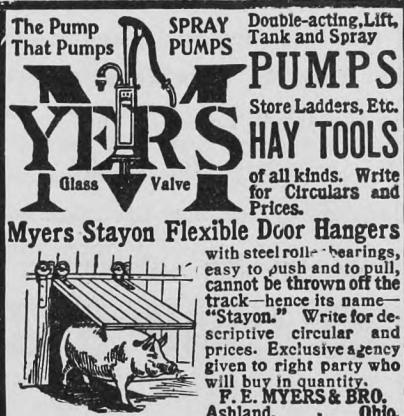
"Favorite" Churn

In 8 sizes, churning from $\frac{1}{2}$ to 30 gallons.



Easy to operate. Bolts throughout in place of wood screws. Superior in workmanship and finish. There is nothing just as good. Do not accept any substitute. If not sold by your dealer write direct to us

David Maxwell and Sons
St. Marys, Ontario



The J. H. ASHDOWN HDW. CO. Ltd.
Distributing Agents - WINNIPEG, Canada.

LIGHT... National Manure Spreader

This is a 75-bushel machine that is handled easily anywhere by two good horses. Has roller bearings. Do not buy a spreader before writing us for a Light Running National catalogue. It is free.

MOLINE PLOW CO., Moline, Ill.

Send 4 cents in stamps for Flying Dutchman Song Book

Please mention this Journal.

both of whom will deliver practical addresses, the former giving in detail the reasons for his placing of the awards and the latter, a talk on some interesting agricultural topic. In return for this agricultural societies are expected to allow the Seed Branch to arrange the date of their fair which will be done as much in accordance with the wishes of the society as the circuit it may be in will permit.

Amongst the changes for the better that might be made, the following are, it is believed, well worthy of consideration. While the prizes on the whole have been good, the total amount offered by the average fair last year being in the neighborhood of \$80.00, there is room for improvement, especially when this amount is compared with what is commonly given at the summer fair for much less important exhibits. As this is a grain growing province, that feature of it deserves encouragement and it is hoped, will receive more of it at the seed fairs.

A seed judging competition would also add to the interest and increase the instructiveness of the fair. One of these was conducted last year and was an unqualified success. A small entrance fee was charged competitors who were allowed five minutes to examine the samples of grain submitted and who were then required to go to another room where they gave their placing and their reasons for so doing, fifty per cent. being allowed for "placing" and fifty for "reasons."

At the Winter Fair to be held in Regina, during the latter part of March, by which time the seed fairs will be over, there will be a seed grain department with substantial prizes and, if it can be arranged, a seed judging competition for the Provincial championship. The prizes will be good and well worth competing for. Harris McFayden will give a good gold medal to the winner of first place in this competition.

It would also add to the interest if a weed seed identification contest was conducted in a manner similar to that outlined for the seed judging competition.

The Seed Branch will supply the samples of grain for both these contests.

PRIZE LIST.

While the same prize list would not be suitable to all societies, as the crops that require encouragement vary in different districts, the following is submitted as a basis on which to work. Many societies will no doubt increase each of these prizes:

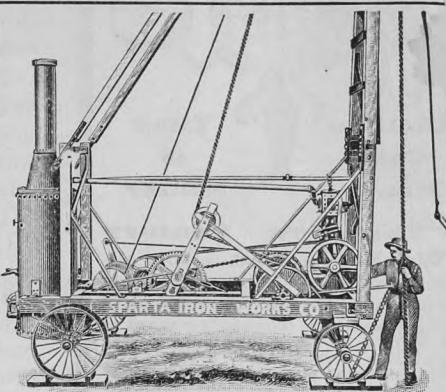
Class.	1.	2.	3.
1. Spring Wheat, Red Fife, ...	\$20.00	\$15.00	\$5.00
2. Spring Wheat, any other variety, ...	18.00	10.00	5.00
3. Oats, White, ...	10.00	5.00	2.50
4. Oats, other varieties, ...	5.00	2.50	1.00
5. Barley, ...	5.00	2.50	1.00
6. Barley, hullless, ...	4.00	2.00	1.00
7. Peas, ...	3.00	2.00	
8. Flax, ...	3.00	2.00	
9. Brome Grass, ...	3.00	2.00	
10. Rye Grass, ...	3.00	2.00	
11. Timothy, ...	3.00	2.00	
12. Potatoes, ...	5.00	3.00	1.00
13. Collection of mounted weeds, ...	2.00		
14. Red Clover (native grown), ...	5.00		
15. Corn (native grown) ...	5.00		

WELL DRILLING MACHINERY

Rock Drilling and Hydraulic Jetting Machines equipped with either Steam or Gasoline Engines on Farm Trucks or as Steam Traction Outfits.

If you will write us for our free illustrated Catalogue we will show you that we can make you prompt delivery from Canadian Warehouses of any style of Machine you may wish.

Local Agents wanted.



SPARTA IRON WORKS COMPANY
SPARTA, WIS., U.S.A.

THE CANADIAN FAIRBANKS CO., Ltd., Winnipeg,
General Agents, Manitoba, Saskatchewan, and Western Ontario.

CHAPIN & CO., Calgary,
General Agents, Alberta

DREWRY'S Refined Ale

REGISTERED.

A TONIC A FOOD

A STIMULANT

PURE AND WHOLESOME

ASK FOR IT

E. L. DREWRY

Redwood Factories

WINNIPEG

NEW CATALOGUE OF

MUSIC

We have just issued for mail order customers a small catalogue of music of all kinds with special prices marked. We want to send you one of these. Will you write for one?

We carry a very large stock of popular music, and music of all kinds for the student.

WRITE FOR CATALOGUES

Lindsay's
284 PORTAGE AVE
WINNIPEG



See our Advertisement regarding
Heath School of Engineering.

RULES GOVERNING SEED FAIR.

1. All seed entered for competitions must have been grown by the exhibitor in the year 1907.

2. Membership in the society will entitle anyone to exhibit.

3. No seed shall be admitted for competition for prizes unless the quantities of seed offered for sale, as per samples exhibited are at least fifty bushels of wheat, fifty bushels of oats, twenty bushels of barley, ten bushels of flax, ten bushels of peas, six bushels of rye grass, five bushels of timothy, five bushels of bromegrass, ten bushels of potatoes and three of corn and red clover.

4. In the case of wheat, two bushels shall be shown, while in the other exhibits one bushel shall be exhibited.

5. Small samples of every exhibit will be taken and held by the Society in charge of the Secretary for exhibition purposes. The set sample may be produced as evidence in the event of any dispute arising from the claim that the seed exhibited was not representative of that afterwards sold.

6. No premium shall be awarded on exhibits that contain impurities which in the opinion of the judges are of a noxious nature or on those that are not considered worthy.

7. No exhibitor shall receive more than one prize in any class.

8. All exhibits of seed must be labelled after judging with the name and address of the exhibitor, name of the variety, amount of seed for sale and the selling price.

9. In case of dispute a statutory declaration that these rules have been complied with may be required from each or any exhibitor of seed.

10. No exhibits, or sacks or other coverings containing them will be admitted with name, marks or initials thereon and all must remain closed till judging commences.

11. Decision of judges to be final.

12. All exhibits for competition for prizes must be in the Hall, not later than 10.30 a.m.

and shall not be removed until the close of the Fair.

SEED JUDGING COMPETITION.

The following prizes are submitted as a basis for the society to work on:—

RULES GOVERNING SEED JUDGING COMPETITION.

1. Any paid up member of the society is eligible to compete on payment to the Secretary, of an entrance fee of 25 cents for each class.

2. Five minutes will be allowed each competitor to examine samples submitted.

3. In making the awards fifty per cent. will be allowed for placing and fifty for reasons.

WEED SEED IDENTIFICATION CONTEST.

The following prizes will be awarded:—

1. Largest number of correctly named weed seeds from sample submitted—\$10.00.

2. Second largest number of correctly named weed seeds from sample submitted—\$5.00.



We have just received the first sample of a special piano made for us by the Mendelssohn Piano Co., to be known as the "Lindsay Model." This is a small piano of the very latest pattern manufactured especially for small homes such as we have in Manitoba.

Send us your address and we will send you full particulars regarding this little piano and our special introduction offer.





BE AN ENGINEER

The demand for expert engineers in Canada is yearly increasing, and moreover far exceeds the supply.

The very fact that a man has spent a season or two in stoking a traction engine is by no means proof that he knows how to operate one. Actual association with the engine itself is a very good thing in any engineer's training, but when taken alone, it will not make a finished engineer. Certain fundamental principles underlie the actual workings of a steam engine, and unless these be thoroughly understood, the engineer gropes his way in comparative darkness, bridging over the attendant difficulties in the best way that he knows, but at the same time wasting much time and losing more money.

The Heath Correspondence system teaches you steam engineering right where you are. All that is necessary is a mail service. You study at such time as suits your convenience. There is absolutely no risk provided you can read and write. The instructions are so clear and complete that any one can follow them.

We would like to send you our free booklet which shows very clearly our system of instruction; gives an outline with illustrations of the entire course, so that you can see how very complete the books of instruction are. Don't hesitate, but send in your name and address to-day, to

E. H. Heath Co. LIMITED

Winnipeg - Man.

GENTLEMEN:—Please send, without cost to me, one copy of the booklet fully describing The Heath School of Traction Engineering (by correspondence).

Name
.....

RULES GOVERNING WEED SEED IDENTIFICATION CONTEST.

1. Any paid up member of the Agricultural Society may compete on payment to the Secretary of the entrance fee, 25 cents, for each class entered.

2. Five minutes will be allowed each competitor to examine the samples submitted.

3. Prizes will be awarded according to the largest number of correctly named weed seeds.

PROGRAMME OF JUDGING AND ADDRESSES.

10.30 a.m. The exhibits will be judged sharp on time. The score card will be used and when filled, left with each exhibit.

1.30 p.m. sharp. The reasons for the placing of the awards will be explained in detail and questions regarding these answered.

2.30 p.m. The winners of prizes will give descriptions of the manner in which they produced their exhibits.

3.30 p.m. Seed Judging Competition.

4.30 p.m. Weed Seed Identification Contest.

The Seed Branch will get out enough neat six page folders (three and a half by six inches) to supply every member of the society. A sufficient number of posters will also be supplied and, as previously mentioned, a judge and a lecturer. A prize list and programme such as above, shoud insure a successful fair.

SHALL PER CENT. OF GERMINATION COUNT?

In view of the fact that a considerable proportion of next year's seed may be frozen and that the most satisfactory way of determining its fitness for seed is by actually testing its germinating qualities, the Seed Branch is willing to test samples. If Agricultural Societies wish to have the per cent. germination taken into consideration in making the awards it will be necessary to secure from prospective exhibitors representative samples of the grains they intend showing all of two weeks before the date of the fair, so that there will be time to send in the samples to have them tested and to get the returns. Societies that wish to do this will be supplied with envelopes in which to send the grain, which will be carried free. To make certain that the grain sent by the exhibitor was the same as that shown at the fair, another sample will be taken at the fair and tested.

The lead pencil is mightier than the billiard cue.

When there's no opposition there can be no victory.

It's better to reason about things than to worry about them.

A well-stocked mind usually insures a well-filled pocketbook.

Your prospects will dwindle the moment you stop trying to improve them.

Shines at Night

"Black Knight" Stove Polish makes stoves shine by night as well as by day. Can't burn it off, either—no matter how hot you make the stove.

Once you polish the stove with

"Black Knight" Stove Polish

and give it a touch after using, you will always have a beautifully shiny stove. For a quick, lasting shine, there is nothing else to equal "Black Knight".

The Biggest Box for the Money, Too.

FRANK O. FOWLER,
President.

ANGUS McDONALD,
Vice-President.

JOS. CORNELL,
Manager.

THE Central Canada Insurance Co.

HEAD OFFICE: BRANDON, MANITOBA.

Licensed under "The Manitoba Insurance Act"
Full Government Deposit
Registered in Saskatchewan and Alberta.

The Saskatchewan Insurance Co.

HEAD OFFICE: REGINA, SASKATCHEWAN.

J. F. BOLE, President.
G. T. MARSH, Vice-President.

Full Government Deposit
Registered in the Province of Alberta.

THE Alberta-Canadian Insurance Co.

HEAD OFFICE: EDMONTON, ALBERTA.

Full Government Deposit
Registered in the Province of Saskatchewan.

H. C. TAYLOR,
President.

J. H. GARIEPY,
Vice-President.

EDGAR A. BROWN,
Secretary.

FIRE INSURANCE

Pure-Bred Registered Live Stock Insurance HAIL INSURANCE (in Manitoba)

Our premium rates are as low as is consistent with fair and liberal treatment of our patrons. Our loss claims are adjusted and paid promptly.

Enquiries addressed to Brandon, Regina or Edmonton for information regarding these lines of Insurance will receive prompt attention.

We want energetic agents in districts where we are not represented, but only those who can and will get business for home Companies need apply.

You Will Find That 99% of the Views taken in the City :: :: :: are taken by :: :: ::

STEELE & COMPANY, LTD.

WHY? Because their work is the Best and orders are always attended to promptly.

ALEX. NAISMITH, President.
WM. PATERSON, Vice-President.

C. D. KERR, Treasurer.
A. F. KEMPTON, Secretary and Manager.

The WAWANESA MUTUAL INSURANCE CO.

HEAD OFFICE: - - - WAWANESA, MANITOBA

Amount of Insurance in Force December 31st, 1906	\$17,477,679.00
Assets over Liabilities, December 31st, 1906	\$224,096.56
The Number of Farmers Insured December 31st, 1905	15,248

Agents Wanted in unrepresented districts.

The Largest Agricultural Fire Insurance Company

WANTS DEPARTMENT

Conducted for the benefit of Dealers, Threshermen, and Farmers who have anything to sell or exchange. Three cents a word for each insertion.

FOR SALE.

One 25 h.p. Buffalo Pitts traction engine (straw burner) used short time. In good condition.

One 22 h.p. Buffalo Pitts traction engine (straw burner) used four seasons, in good condition. A bargain.

One 16 h.p. J. I. Case traction engine (straw burner) used four seasons.

One 18 h.p. John Abell traction engine (straw burner), in good order. This engine will be sold cheap.

One 20 h.p. Sawyer-Massey portable engine (straw burner). This engine has been thoroughly overhauled, and is in perfect condition.

One 44x66 J. I. Case separator, feeder, high weigher and Jones stacker. This machine is in good condition. Will sell cheap.

One 30 h.p. Port Huron compound traction engine. In good shape, run only part of two seasons.

One 25 h.p. J. I. Case simple traction engine, run three seasons. In good shape.

Write for Price—

HAUG BROS. & NELLERMOE LTD., WINNIPEG, MAN.

SNAPS in Second-Hand Machinery.

One 22 H. P. (Battle Creek) Advance Simple Traction Engine—\$1,600.00.

One 25 H. P. Minneapolis Simple Traction Engine—\$1,200.00.

One 17 H. P. Minneapolis Compound Traction Engine—\$1,000.00.

One 20 H. P. Northwest Simple Traction Engine—\$1,000.00.

One 14 H. P. Haggart Portable Engine—\$250.00.

One 14 H. P. Waterloo Portable Engine—\$600.00.

One 17 H. P. George White Traction Engine—\$500.00.

One 36x56 (Battle Creek) Advance Separator—\$250.00.

One 36x62 Minneapolis Separator—\$200.00.

One 40x62 J. I. Case Separator—\$250.00.

Second-Hand Windstackers, Feeders, and

Weighers can be supplied with any of above Separators. Threshermen looking for bargains should write us re above.

THE AMERICAN-ABELL ENGINE & THRESHING CO., LIMITED, WINNIPEG, MAN.

FOR SALE.

The following and other second-hand machinery: One 20 h.p. Simple, double cylinder straw burning engine, built by Reeves & Company, and has seen three seasons service in threshing.

One 27 h.p. Robert Bell straw burning engine; run two seasons; used for threshing purposes only.

One 18 h.p. Waterous engine. This engine has seen several years service, but is still in good running condition.

One 20 h.p. Simple, double cylinder, straw burner Reeves engine; been used for threshing purposes only a little more than two years.

One 18 h.p. Battle Creek Advance engine, which has seen about six years service.

One 36x60 Advance separator with feeder, tall weigher and stiff stacker.

One 36x56 Battle Creek Advance separator with Parsons feeder, high weigher and stiff stacker.

We have the majority of the above machinery on hand in Winnipeg; the balance of it we expect to ship in very soon, and any one of the above machines will be put in first-class condition, and service practically equal to that of a new machine may be gotten out of any of the machines above described.

If you are interested in second-hand machinery we shall be pleased to have you write us, and if nothing listed above will suit you, we can likely find others for you, and the prices will be right.

REEVES & CO., Winnipeg, Man.

FOR SALE—Pair of French Bur Millstones, 26 inches under runner in frame complete for work. Capacity for chopping 30 to 40 bushels per hour. Can grind fine for Graham flour if you choose. Will sell cheap. F. O. B. at Dufrane or Winnipeg. Apply John Bell Sr., Rosewood, Man.

REBUILT MACHINERY.

Engines:— One 25 h.p. double cylinder Gaar-Scott traction.

Two 18 h.p. Gaar-Scott traction.

One 20 h.p. Waterous portable.

Separators and Attachments:— One 36x60 Gaar-Scott.

One 36x58 J. I. Case.

One 40x62 J. I. Case.

One 36x56 Sawyer & Massey.

One 40x64 Advance.

GAAR-SCOTT & CO., WINNIPEG, MAN.

THRESHING MACHINE FOR SALE.

33x52 Gaar-Scott Separator, run four falls, rebuilt last fall; Parsons Hawkeye Feeder, run two falls; Perfection high loader and weigher, run two falls; Jones blower, run three falls; all in good order and ready to work. Price \$600.00. Terms to suit. Apply to Wickham & Son, Brookside, or to V. C. McCurdy, Moosomin Sask.

FOR SALE.

One 25 h.p. Nichols & Shepard S.C. S.B. traction engine.

One 40x60 Nichols & Shepard Red River special separator, fitted with N. & S. wind stacker; self feeder and Dakota style Perfection weigher, all in first-class repair. Prices quoted on application.

One 25 h.p. Nichols & Shepard S.C. S.B. traction engine.

One 36x56 N. & S. Red River special separator, fitted with N. & S. gear wind stacker, self feeder and Peoria weigher. Price quoted on application.

One 18 h.p. American-Abell S.C.S.B. traction engine. Price quoted on application.

One Low-down Tank pump without hose.

Price \$6.00.

NICHOLS & SHEPARD CO., WINNIPEG, MAN.

FOR SALE.

One complete Threshing Outfit for sale at a bargain.

122 h.p. American-Abell Traction Engine.

132x52 Northwest Separator, with Perfection Weigher, Hawkeye Feeder, Fosston Blower, 150 B.t., 1 Caboose, mounted Steel Tank, and 1/2 round Wooden Tank. Price \$2,500.00.

The above has been used only for about two seasons, part of it only one season. Everything is in good working order. Apply to

J. & E. BROWN, Portage la Prairie.

FOR SALE.

One complete Threshing Outfit for sale at a bargain.

122 h.p. American-Abell Traction Engine.

132x52 Northwest Separator, with Perfection Weigher, Hawkeye Feeder, Fosston Blower, 150 B.t., 1 Caboose, mounted Steel Tank, and 1/2 round Wooden Tank. Price \$2,500.00.

The above has been used only for about two seasons, part of it only one season. Everything is in good working order. Apply to

J. & E. BROWN, Portage la Prairie.

WATEROUS ENGINE WORKS CO. LTD., WINNIPEG, MANITOBA.

180

W. & M.

DEPARTMENT OF INLAND REVENUE,

OTTAWA, September 9th, 1907.

SIR,—

I beg to advise you that the Automatic Threshing Machine Measure manufactured by the Virden Manufacturing Company of Virden, Manitoba, has been presented to the Department for examination and is admitted to verification for use in connection with establishing the charge for the threshing of grain (Sec. 33 of Revised Weights and Measures Act).

Before verifying and stamping these measuring machines, Inspectors are required to see:—

"A."—That they are constructed without any adjustable parts that can be employed to increase or diminish the capacity of the measure.

"B."—That they are provided with a properly sealed or locked recording device.

"C."—That the lever supporting the machine oscillates freely on four hardened steel knife edges and that the bearings are sufficiently hard to resist the action of a sharp file.

"D."—That the whole of the machine is made of metal and that a soft metal plug is provided on a prominent part thereof for the official stamp.

"E."—That each machine has incised or cast on it the maker's name, consecutive shop number and capacity of the measuring compartments.

"F."—When upon being tested with grain the quantity discharged by one complete revolution of the cylinder is not less than the aggregate capacity represented by the three compartments.

These machines should be included in certificates under Class VII. The fee for verification is seventy-five (75) cents.

I remain, Sir, Your obedient servant,

W. J. GERALD,

Deputy Minister.

To Inspectors of Weights and Measures.

For catalog and further information address:—

THE VIRDEN MANUFACTURING CO., LTD.
VIRDEN = = = MANITOBA

Thresherman's Settlement Books

Enable you to keep a complete record of work done, all expenses incurred, they avoid all possibility of disputes and losses arising from inaccurate records. The price is only 50 cents or with The Canadian Thresherman and Farmer one year 75 cents. Fill out the coupon below:

Enclosed find 75 cents for which send me The Canadian Thresherman and Farmer for one year together with a copy of The Thresherman's Settlement Book.

Name

Province, P.O. Box

Address

E. H. HEATH CO., Limited

WINNIPEG

FOR SALE.

One 18 h.p. Waterous Return Flue Boiler Traction Engine. Thoroughly repaired and in good working order.

One 18 h.p. Phoenix Traction Engine. Built by Aultman & Co., with return flue boiler, thoroughly overhauled and repaired and put into first class running order.

One 17 h.p. Waterous. With return tubular boiler, repainted, and in good condition.

One 14 h.p. Stevens & Burns Engine. This engine is in splendid condition, having been thoroughly rebuilt.

One 17 h.p. Sawyer-Massey Engine. Fully repaired and repainted, and in good working condition. Return flue boiler.

One 36x60 McCosky Thresher. With geared wheel, repaired and repainted, in good working order.

One 40x60 McCosky, with straw carriers, Hawkeye feeder, overhauled and in good condition.

One Ruth Feeder. This is new; never has been used, is for a 40-inch thresher.

One Rich Feeder, for 32 or 36 inch machine. In first class condition.

One Fosston wind stacker, side fan, in first-class condition; for 56 or 60 inch thresher.

One Perfection wagon elevator, almost as good as new.

One Short Glendale weigher and bagger. New; never been used.

WATEROUS ENGINE WORKS CO. LTD., WINNIPEG, MANITOBA.

FOR SALE, a good second-hand Sawyer-Massey Threshing Outfit. 32x54 Daisy Separator, with Feeder and Blower and High Bagger, and 18-horse Traction Engine, Tanks, Caboose and Trucks, all for \$1200.00—a bargain. The outfit has just run 4 seasons and is in good repair. Good reason for selling.—Address, A. W. McGregor, Cypress River, Man.

WANTED—Thoroughly experienced steam traction and electrical engineer with many years experience in England and Australia wishes position. Can also handle gasoline motors. Traction engine owner will find in me just the man they are looking for.—Address R. W., c. o., Canadian Thresherman and Farmer.

FOR SALE AT A BARGAIN.

One 20 h.p. Abell C.C. Traction Engine.

36x60 Toronto Advance Separator.

60 inch Parsons Feeder.

The above outfit has been thoroughly overhauled, rebuilt and painted, is in first class condition and ready to take the field.

I also have one 14 h.p. Abell Portable Engine and a 36x56 Toronto Advance Separator.

If you are looking for a bargain in threshing machinery write me above.

If you have any farm land to dispose of, perhaps we can make trade. Write to

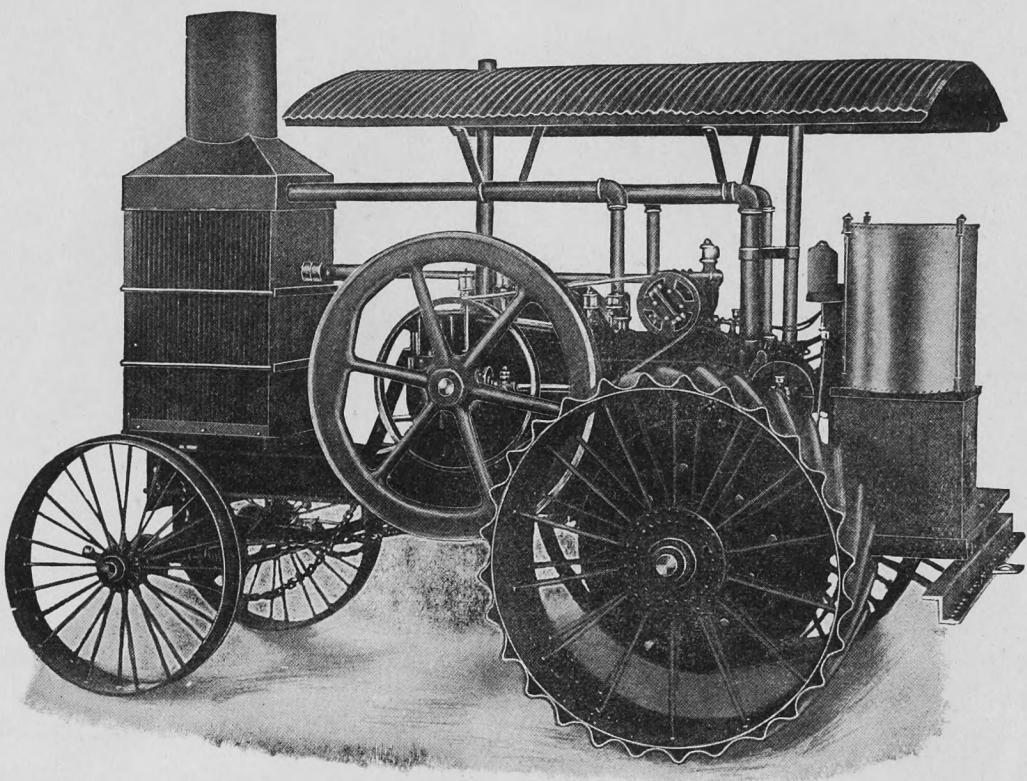
A. E. JOHNSON, P. O. BOX 99, WINNIPEG, MANITOBA.

LET =

THE HART-PARR

DO YOUR WORK

THE IDEAL ENGINE FOR THE LARGE FARMER



Don't Worry Over the Labor Proposition

THE HART-PARR GASOLINE TRACTION will do the work of many men and horses. Always ready. No expense when not at work. No coal or water wagons. No danger of fire. The cheapest power known.

If You Have

Grain to Thresh, Plowing to Do, Roads to Make, Feed to Grind, Grain to Seed, Hay to Bale, etc.

GET A HART-PARR

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